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JAPANESE FISHING GEAR

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JAPANESE FISHING GEAR

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JAPANESE FISHING GEAR

SUMMARY

1. Almost every type of fishing gear known to man is used in Japan. This study presents illustrations and short descriptions of nets, hooks and lines, and various traps common to Japanese commercial fishing. Although many other devices for catching fish are employed, this report describes typical gear used in each of the basic fishing methods.

JAPANESE FISHING GEAR 1/

INTRODUCTION

A. General

1. The most primitive to the most modern types of gear were used by the 1,500,000 Japanese fishermen who caught 3,000,000 to 5,000,000 metric tons of fish and other marine products annually from 1936-1942. In this report the gear employed, some of the boats used to operate the gear, and the actual fishing operations are described and illustrated. As the kinds of fishing gear used by the Japanese total many hundreds, only a few are considered, but these have been chosen as representative of the main methods employed in Japanese commercial fisheries.

2. Japanese fishing gear may be divided into three general categories: (a) nets, including traps; (b) hooks and lines; and (c) miscellaneous types. Japanese nets in turn, are of six major types:

a. Gill nets (SASHI-AMI), designed to capture fish and other marine animals by entangling them in meshes

b. Casting nets (TO AMI), designed to spread out over a school of fish, capturing the fish as the weighted corners come together

c. Lift nets (SHIKI AMI), designed to scoop or lift fish from the water

d. Beach seines and trawls (HIKI AMI), designed to capture fish by dragging a net along the bottom

e. Purse seines and other encircling nets (KINCHAKU AMI), designed to surround fish

f. Set nets and traps (TEICHI GYOGU), designed to entrap fish

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1/ The information presented in this report was gathered and compiled by Capt. John L. Kask, Fisheries Division, with the assistance of Professor Yoshio Hiyama of Tokyo Imperial University. All illustrations of gear, many of them based on actual observation, were drawn by Mr. K. Kita.

Note: This is a reproduction of Report No. 71, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers, Tokyo, issued March 5, 1947. (Reproduced by permission of the Civil Affairs Division, United States Department of the Army.)

Hook and line fishing consists of simple angling, hand trawling, and line trawling. Miscellaneous gear includes those used in spearing, shell collecting, and seaweed collecting.

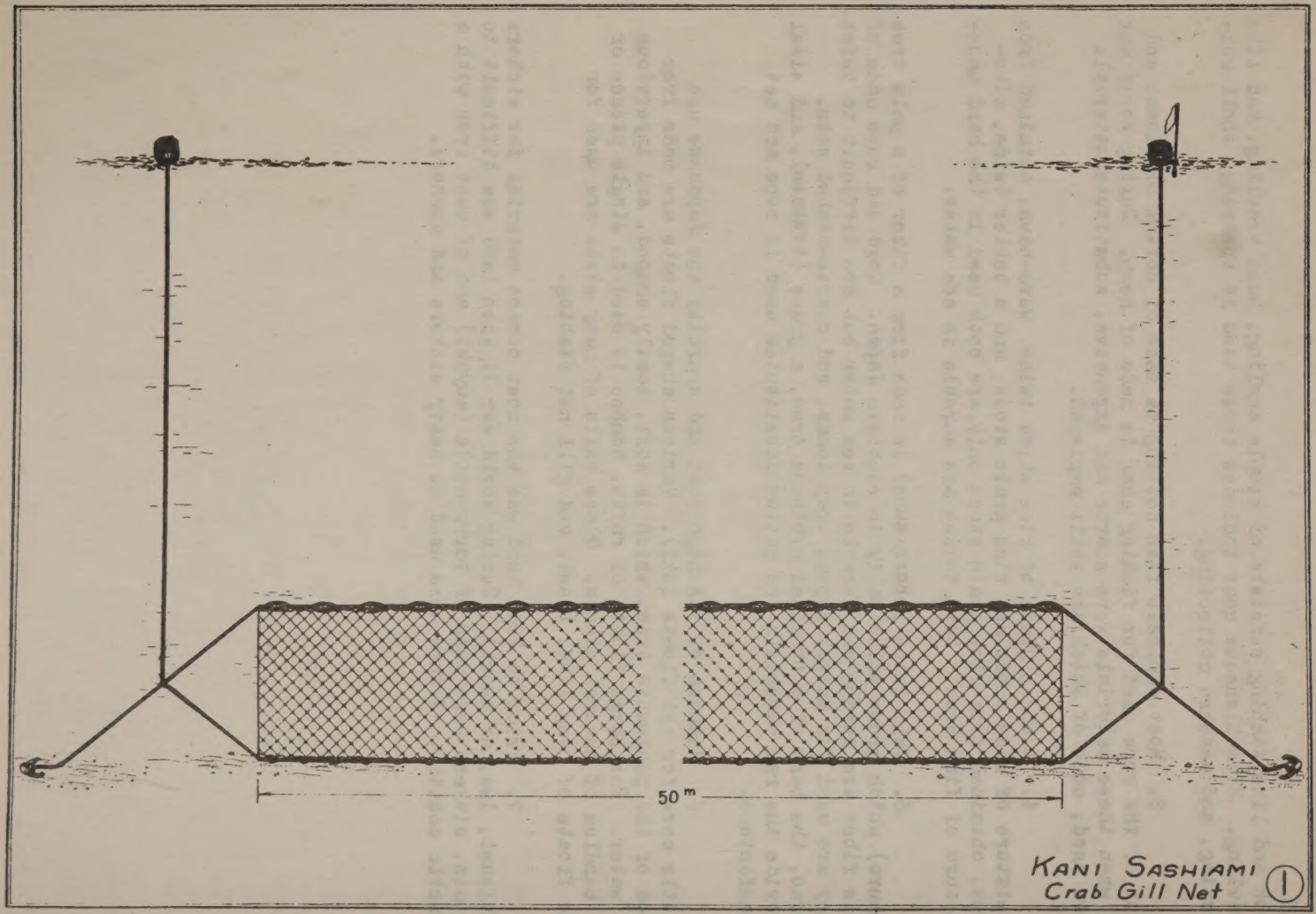
3. Most Japanese fish netting is made of cotton or linen, and most of the rope used for fishing gear is made of hemp. During World War II when these materials were scarce and expensive, substitute materials were used, some of which are still employed.

4. A cheap grade of rice straw twine, wara-nawa, obtained from a mixture of rice blade and rice grain stock, and a better twine, miko-nawa, obtained from rice grain stock only, are both used in the hand manufacture of fish nets. Both twines are durable in sea water.

5. Palm twine (shuro-zuna) is made from a fiber of a palm tree (shuro) which grows principally in southern Japan. Cord and rope made of this fiber are strong and durable in sea water but are difficult to twist. They are used for anchor ropes, trap leads, and coarse-meshed nets. Karao, the bark of a tropical hybiscus tree, a grass (irakusa), and sisal provide the raw materials for cotton substitutes used in rope and net manufacture.

6. Because of its high cost and scarcity the Japanese use little cork for net floats (uki). Various shaped floats are made from wood of the paulownia tree, which is soft, easily shaped, and impervious to water. For large floats or rafts, bamboo is used in single pieces or as bundles of several pieces. Glass balls of many sizes are used for the floats of long line, trawl, and gill net fishing.

7. Prior to 1942 lead was the most common material for sinkers (shizumi, iwa, or omori). During World War II, when lead was difficult to obtain, sinkers were made of terra-cotta (suyaki) and of cast iron with a plastic coating. Stones were used as heavy sinkers and anchors.



KANI SASHIAMI
Crab Gill Net (1)

GILL NETS (SASHI AMI)

Gill nets, designed to capture fish and other marine animals by entanglement, are used in Japan for a much greater variety of species than in other countries. Salmon, mackerel, tuna, sardines, crabs, spiny lobsters, abalones, and numerous bottom-feeding fish are taken by this means.

Figure 1

NAME: Crab gill net (KANI SASHI AMI)

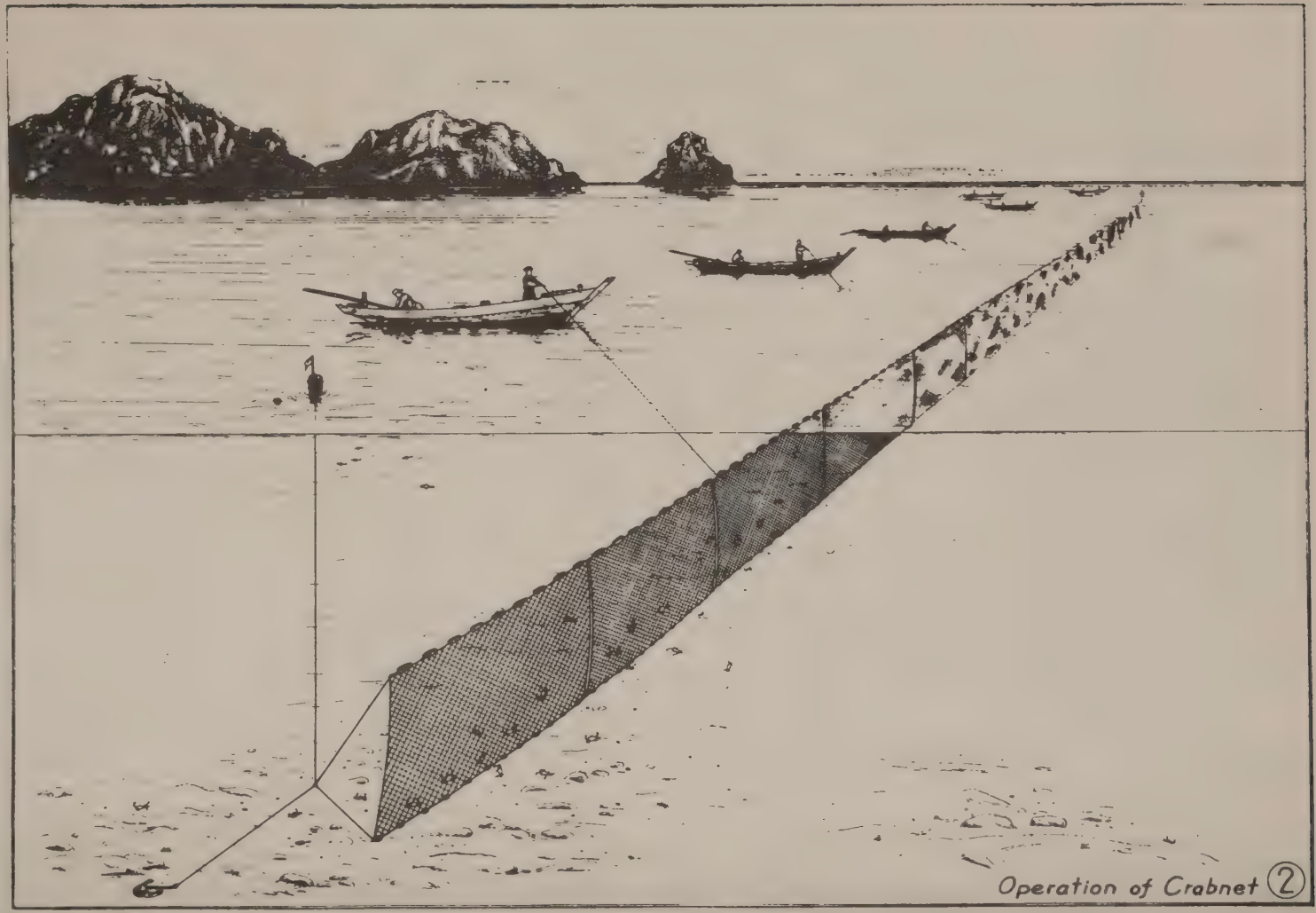
CONSTRUCTION: Cotton twine netting in units about 50 meters long. Mesh size 2/ varies from 45 to 52 centimeters.

OPERATION: The units are tied end to end so that several miles of net, hanging vertically, lie along the sea bottom.

DISTRIBUTION: Formerly used in Okhotsk and Bering seas and off the Kurils and Hokkaido. Now used only in the Hokkaido area.

SPECIES: Crabs

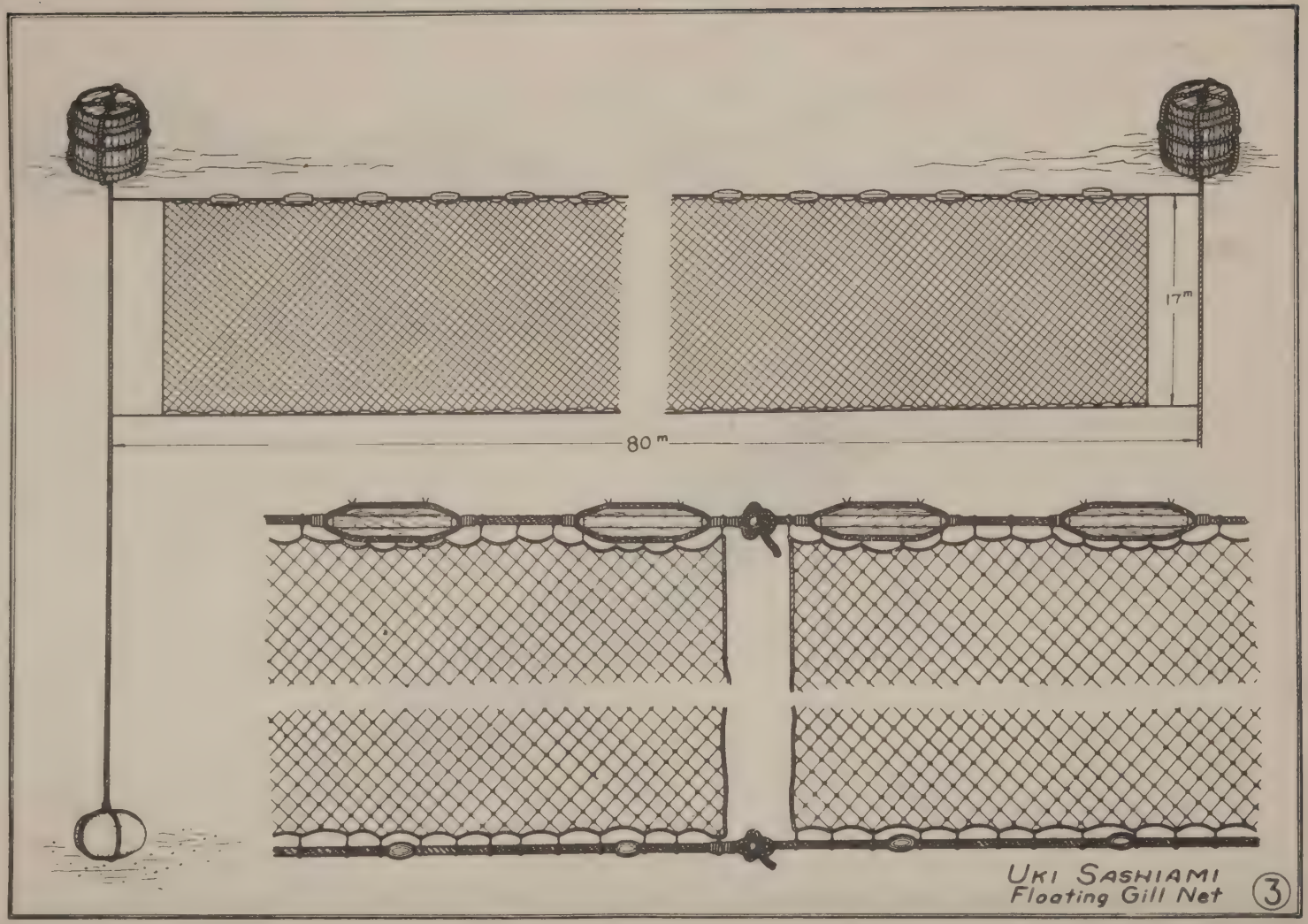
2/ In this report all mesh measurements are given in terms of stretched mesh.



Operation of Crabnet ②

Figure 2

Operation of crab gill net (KANI SASHI AMI)



UKI SASHIAMI
Floating Gill Net (3)

Figure 3

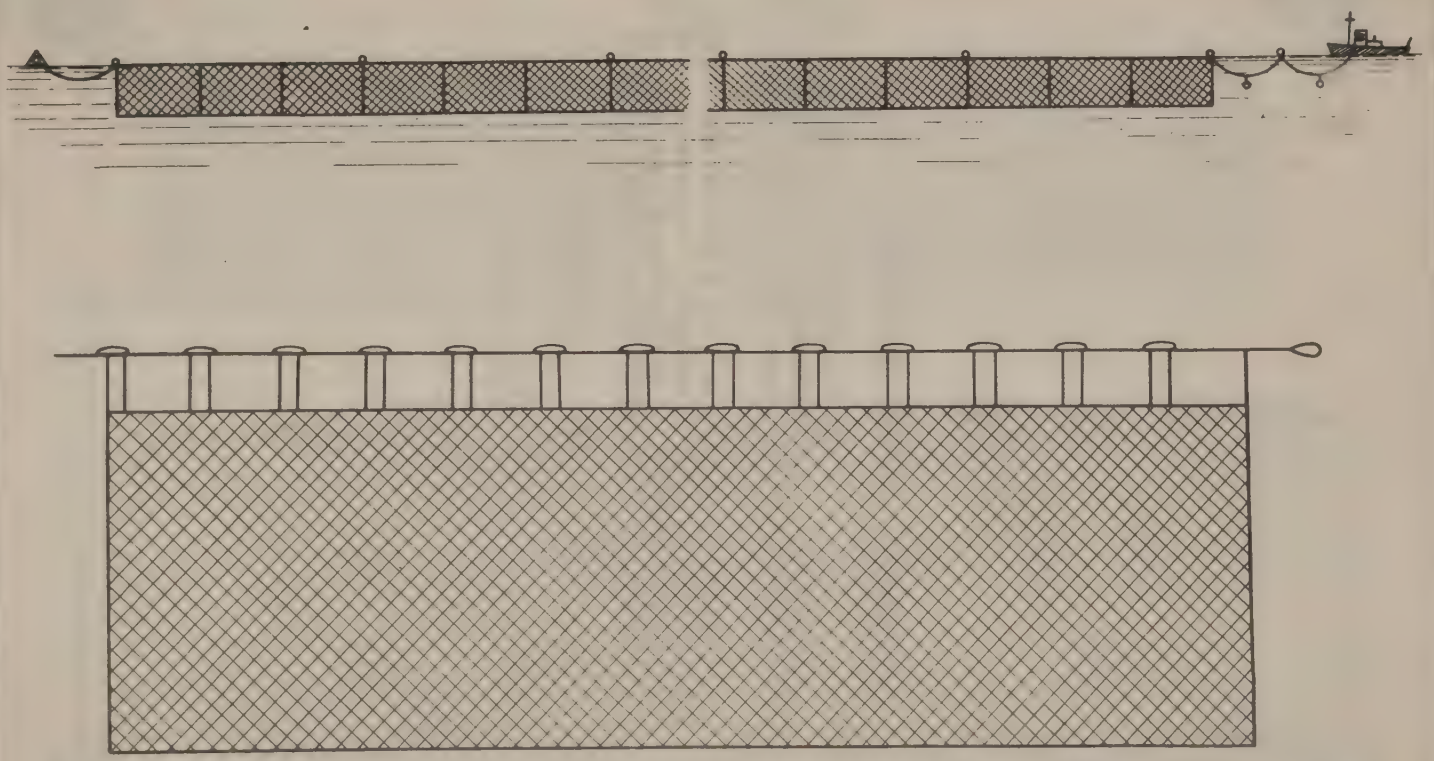
NAME: Floating gill net (UKI SASHI AMI)

CONSTRUCTION: Made of cotton twine in units about 80 meters long and 17 meters deep. For sardines the common mesh size is two centimeters, but a larger mesh is used for larger fish.

OPERATION: The units are joined to form a net several miles long which hangs from the surface. In operating the net, two or three unpowered or small powered boats and about 15 men are employed. For sardines the common mesh.

DISTRIBUTION: In coastal waters in all maritime prefectures

SPECIES: Sardines and other pelagic fish



MAGURO NAGASHI AMI
Tuna Drift Net
(4)

Figure 4

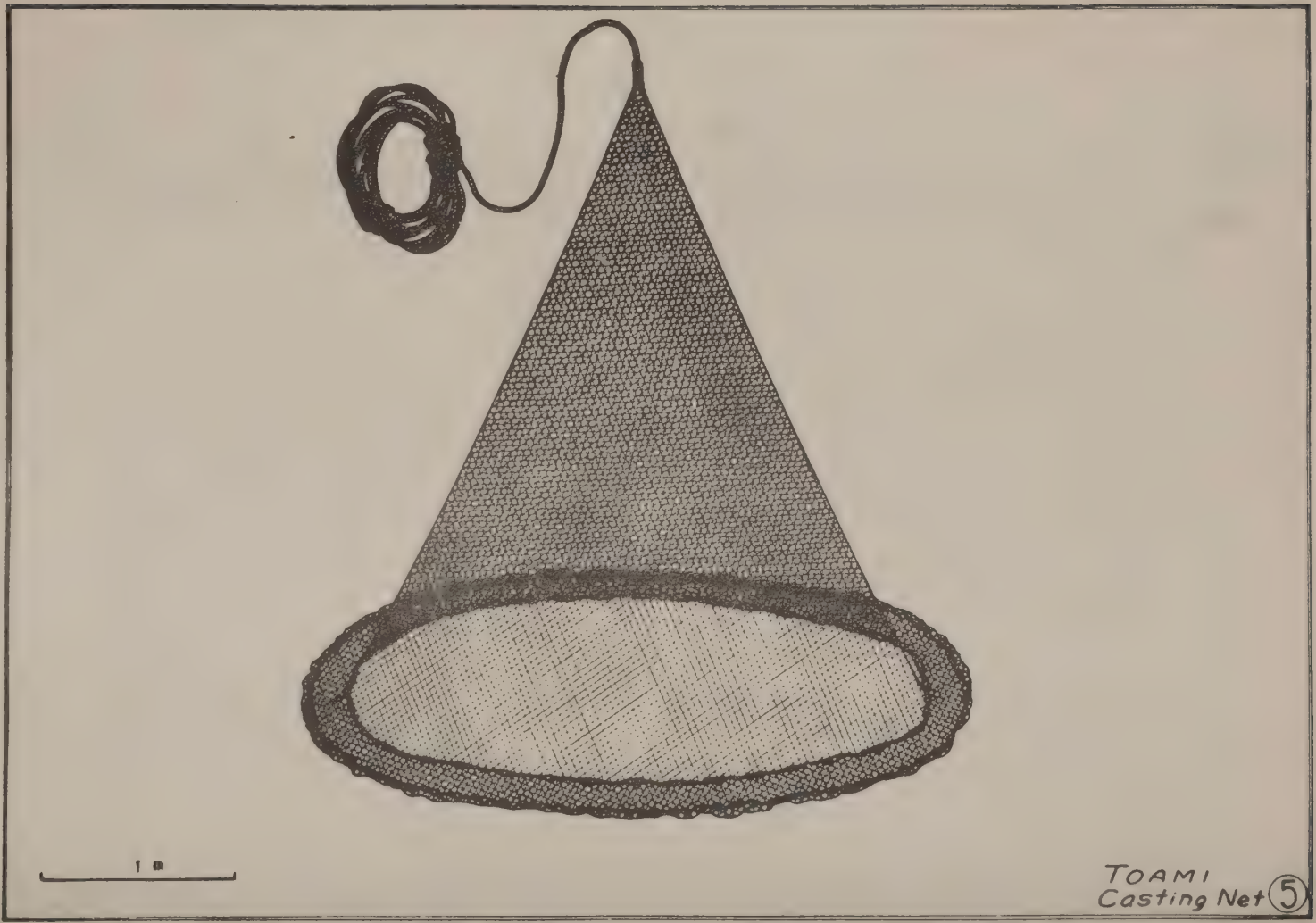
NAME: Tuna drift net (MAGURO NAGASHI AMI)

CONSTRUCTION: Made of units 50 meters in length and 10 to 12 meters in depth. The netting is of heavy linen twine. Floaters are of paulownia wood, 4 x 10 x 45 centimeters. The mesh is 25 centimeters.

OPERATION: The net, made of units fastened together, is attached to and drifts with a vessel. A small boat is used to remove the fish when a strike occurs.

DISTRIBUTION: Although some tuna fishing is still done with drift nets, this gear has been largely supplanted by the modern long line method.

SPECIES: Tuna



1 m

TOAMI
Casting Net (5)

CASTING NETS (TO AMI)

Casting nets are so designed that they can be dropped over schools of fish which become entrapped. These nets are in common use throughout Japan in small-scale fishing operations.

Figure 5

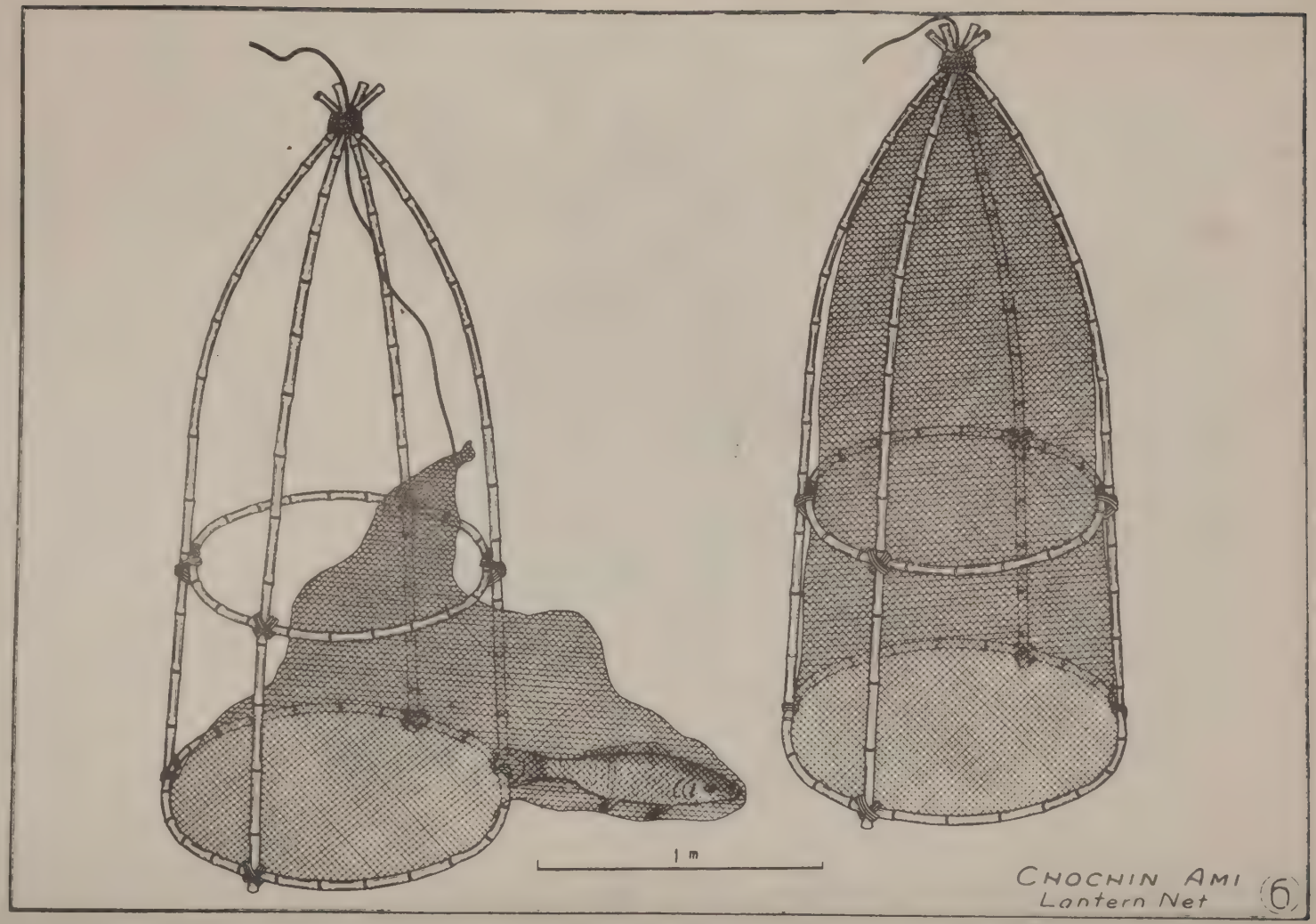
NAME: Hand casting net (TO AMI)

CONSTRUCTION: Made of cotton, linen, or silk thread. Both net and sinkers are light as the net is used by one man.

OPERATION: Cast by one man in such a manner as to fall over schools of fish and entrap them in a built-in pocket at the outer margin of the net.

DISTRIBUTION: In use throughout Japan

SPECIES: Chiefly grey mullet, ayu, carp, and trout but also used for many other species.



CHOCHIN AMI
Lantern Net (6)

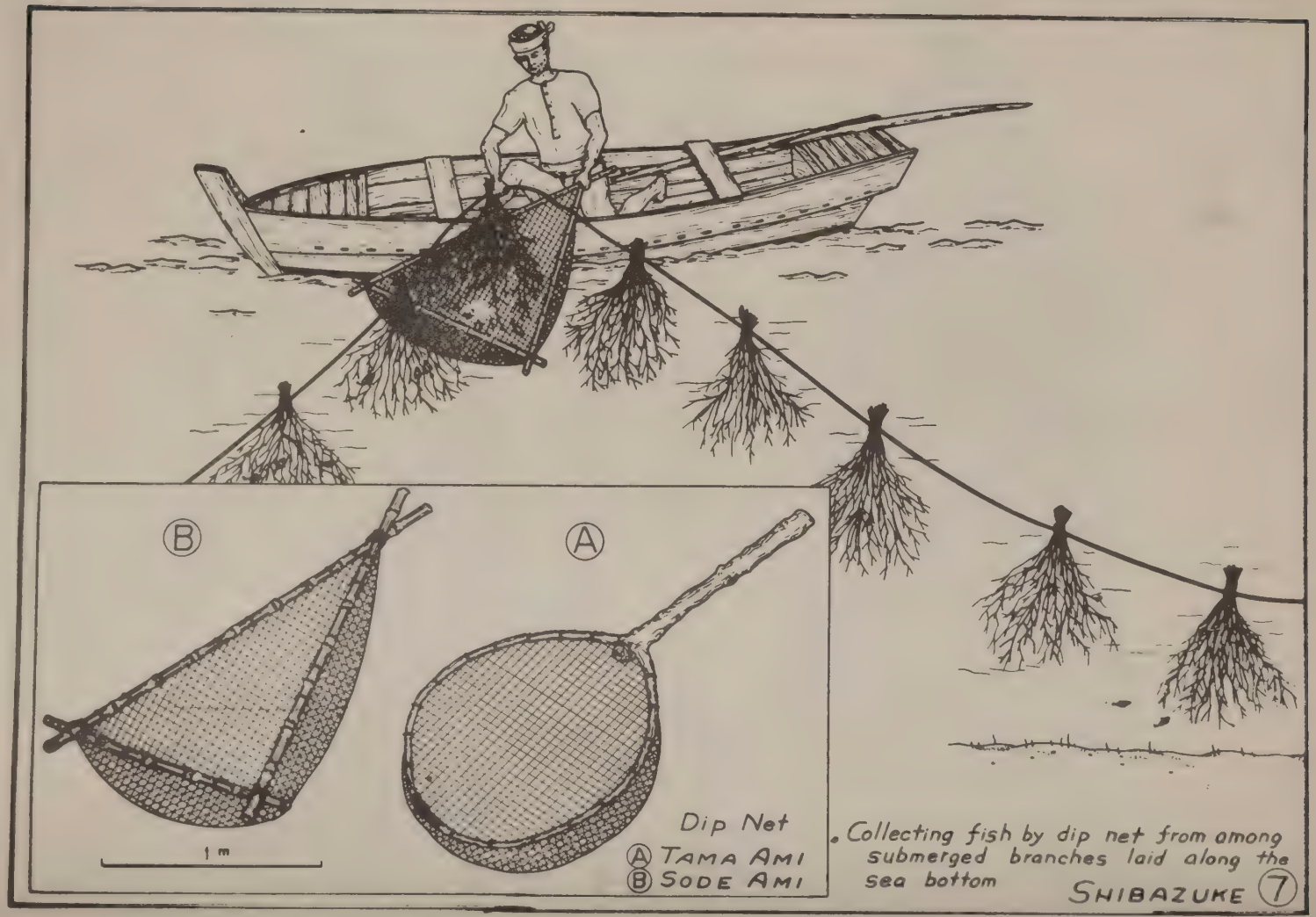
Figure 6

NAME: Lantern net (CHOCHIN AMI)

CONSTRUCTION: The net, two to three meters high and fitted within a bamboo frame, has a mouth opening one to two meters in diameter. Many modifications of this net are used.

OPERATION: After the net is dropped over the fish, the netting is released within the frame by the slackening of the net rope from the surface. The fish are caught in the folds of the net.

DISTRIBUTION: In general use throughout Japan, chiefly in rivers and lakes.



Dip Net
(A) TAMA AMI
(B) SODE AMI

Collecting fish by dip net from among submerged branches laid along the sea bottom

SHIBAZUKE (7)

LIFT NETS (TAMA AMI and SHIKI AMI)

The principle of lift nets is simply that of using a net to screen fish from the water. Some have rigid frames whereas others are held taut by ropes. They vary in size and shape from small dip nets handled by one man to large lift nets operated by as many as nine men with the aid of four boats. Nets of this group are in common use in all parts of Japan and account for an appreciable catch of fish.

Figure 7

NAME: Simple dip net (TAMA AMI or SADE AMI)

CONSTRUCTION: Made of various materials, such as netting attached to bamboo frames, or entirely of split bamboo. One to two centimeters is the common mesh size.

OPERATION: Used to transfer fish from nets to vessels and also for the actual capture of fish and shrimp in rivers, lakes, and from seaweed areas of coastal waters.

DISTRIBUTION: Throughout Japan

SPECIES: Shrimp and small fish

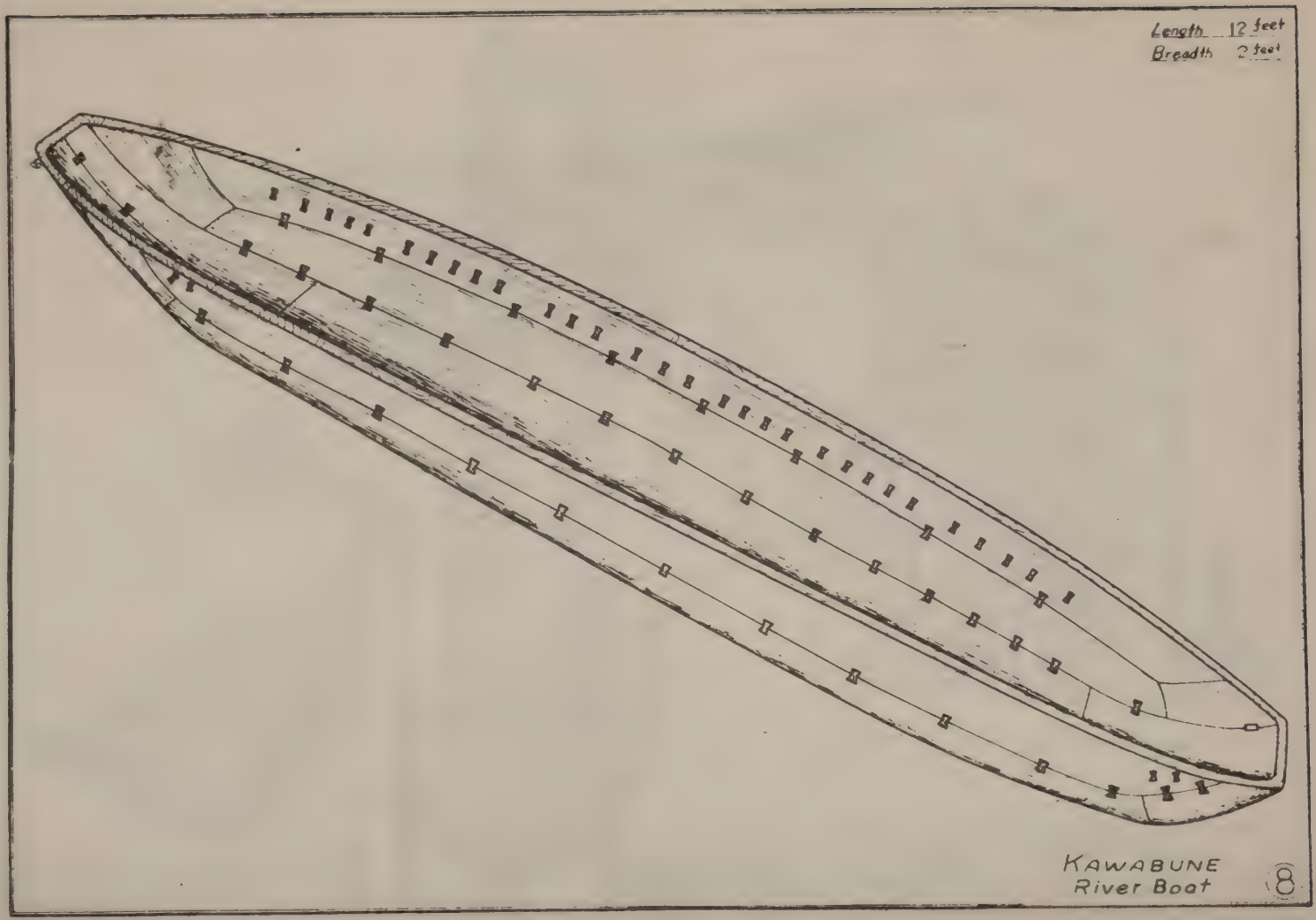
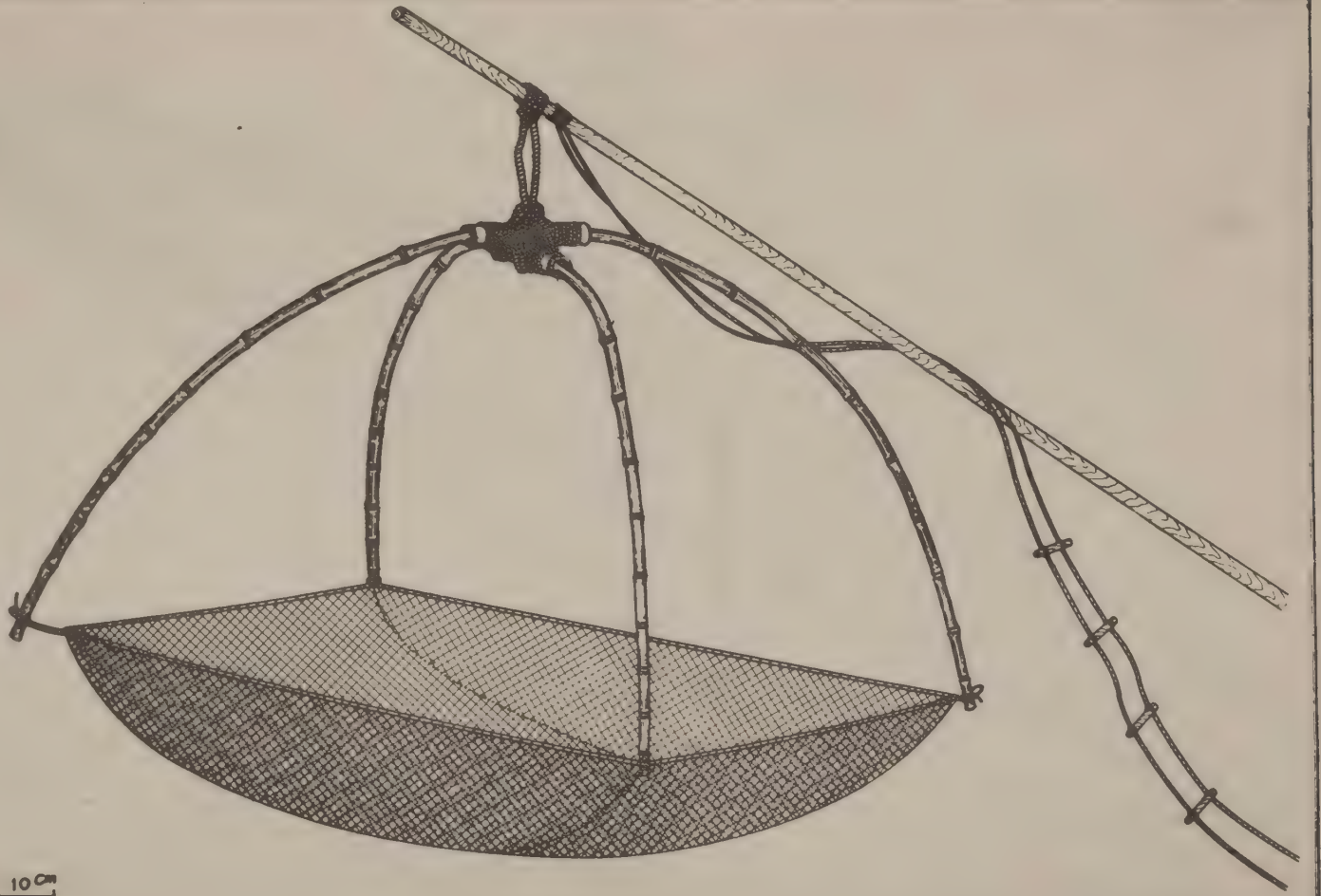

Length 12 feet
Breadth 2 feet
KAWABUNE
River Boat
8

Figure 8

River Boat (KAWABUNE)

The river boat pictured here shows the efficient boat commonly used in rivers and lakes of Japan for the operation of gill nets and lift nets.



YOTSUDE AMI
Four Angle Dip Net ⑨

Figure 9

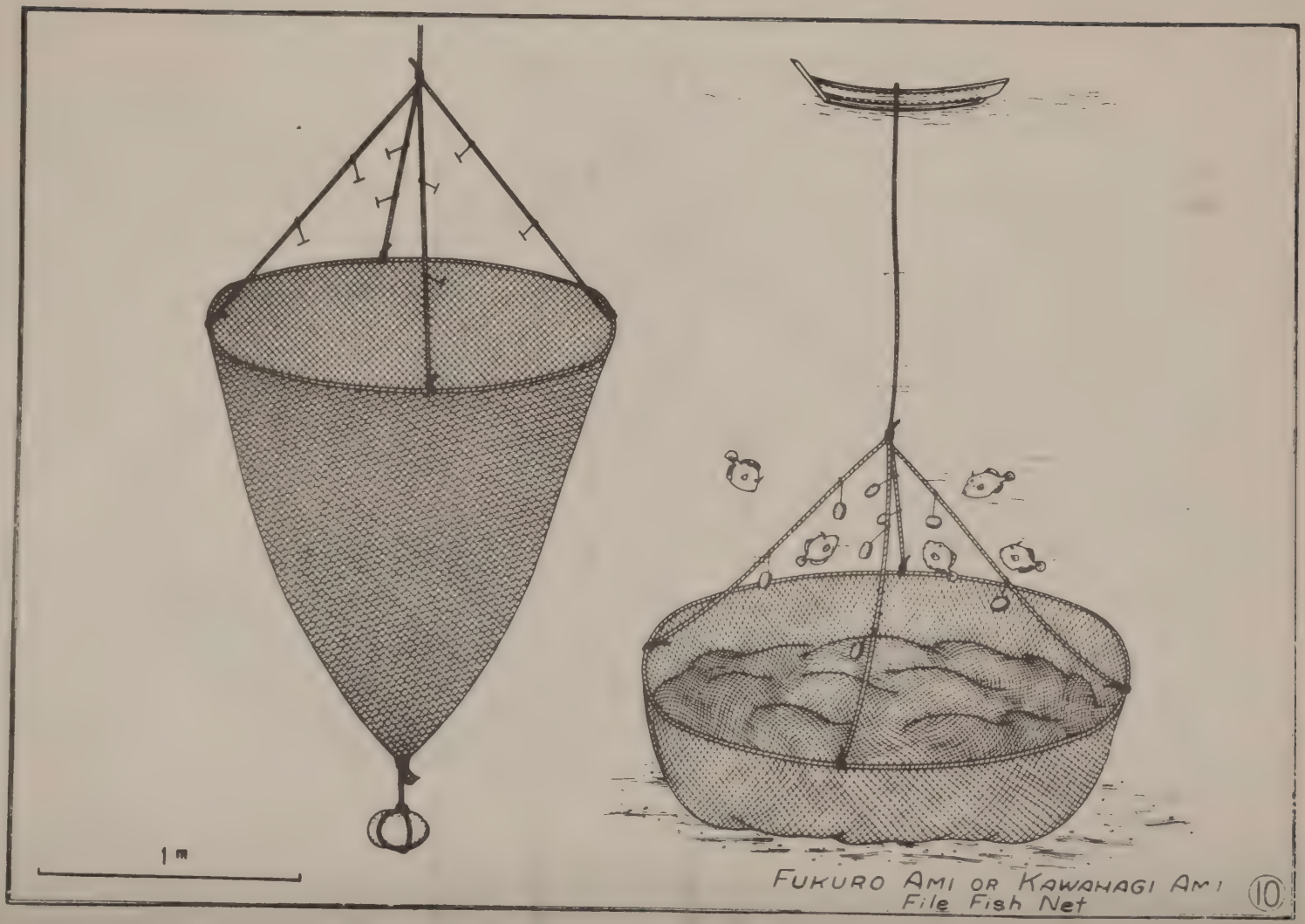
NAME: Four-angle dip net (YOTSUDE AMI)

CONSTRUCTION: Made of cotton twine framed on bamboo poles 1.5 to five meters long. The corners of the net are lashed to crossed bamboo rods. The rods, in turn, are tied to a long bamboo pole which is used to raise and lower the net. Two-centimeter mesh is common size for fresh water species.

OPERATION: The net, worked either from shore or from a boat, is kept under water until fish swim over it. At this point the net is lifted to capture the fish.

DISTRIBUTION: Used chiefly in fresh waters throughout Japan, but also in shallow ocean areas.

SPECIES: Chiefly carp, dace, chub, and other fresh-water fish



FUKURO AMI OR KAWAHAGI AMI
File Fish Net (10)

Figure 10

NAME: Filefish net (FUKURO AMI or KAWAHAGI AMI)

CONSTRUCTION: Made of cotton twine lashed to a circular frame. The nets are two to four meters in diameter, the mesh size varying according to species sought (about four centimeters for filefish).

OPERATION: The net is lowered to the bottom with clams or other suitable bait attached. When fish come for the bait, the net is lifted.

DISTRIBUTION: General in coastal waters throughout Japan

SPECIES: Chiefly filefish, but crabs, mackerel, and hardtail are caught with modifications of this net.

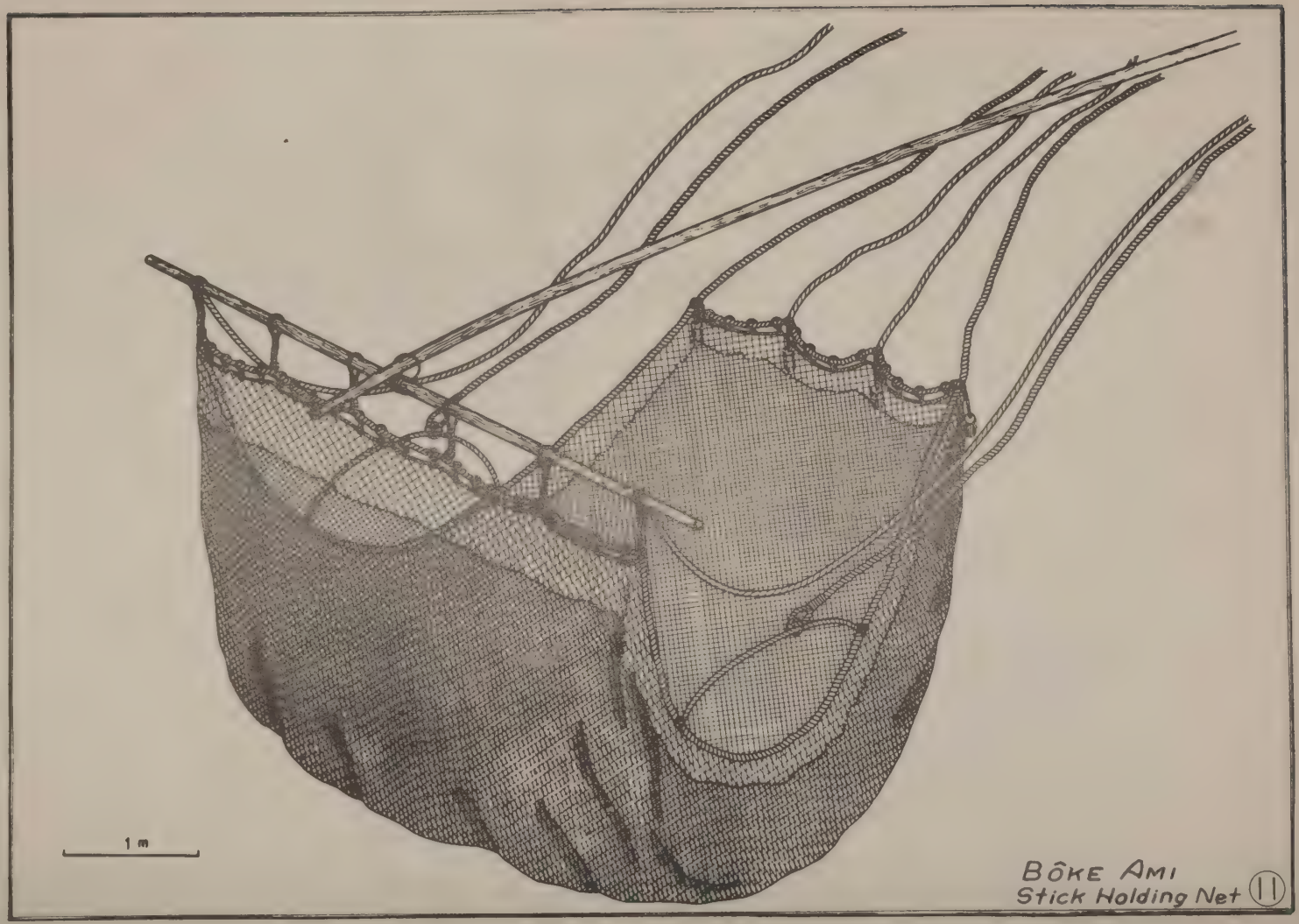

1 m
BÔKE AMI
Stick Holding Net
11

Figure 11

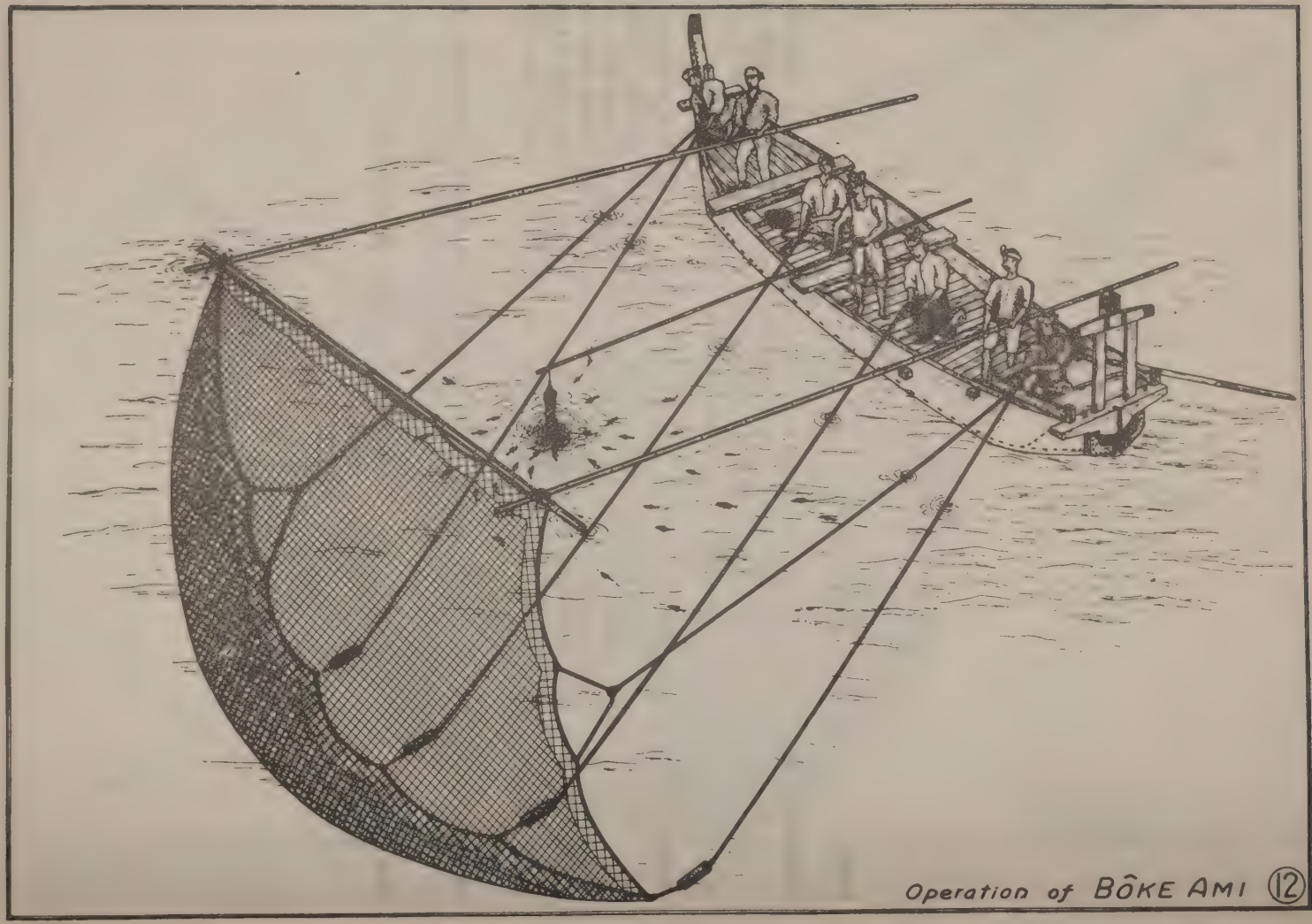
NAME: Stick-held dip net (BOKE AMI)

CONSTRUCTION: This net in most cases is of cotton twine with a mesh varying from 2.5 centimeters in the center to five centimeters along the upper edges. For larger modifications of this net, ropes and buoys are used in place of sticks.

OPERATION: The pole end of the net is pushed out from a boat while the other end is held closer to the boat by ropes. Fish are lured by bait or by a light if the operations are at night. When the number of fish in front or above the net is considered sufficient, the net is hauled in, the line end being pulled faster than the pole end, capturing the fish in the belly of the net.

DISTRIBUTION: The net is in common use in Chiba, Kanagawa, Shizuoka, Mie, Wakayama, Miyazaki, and Kagoshima prefectures.

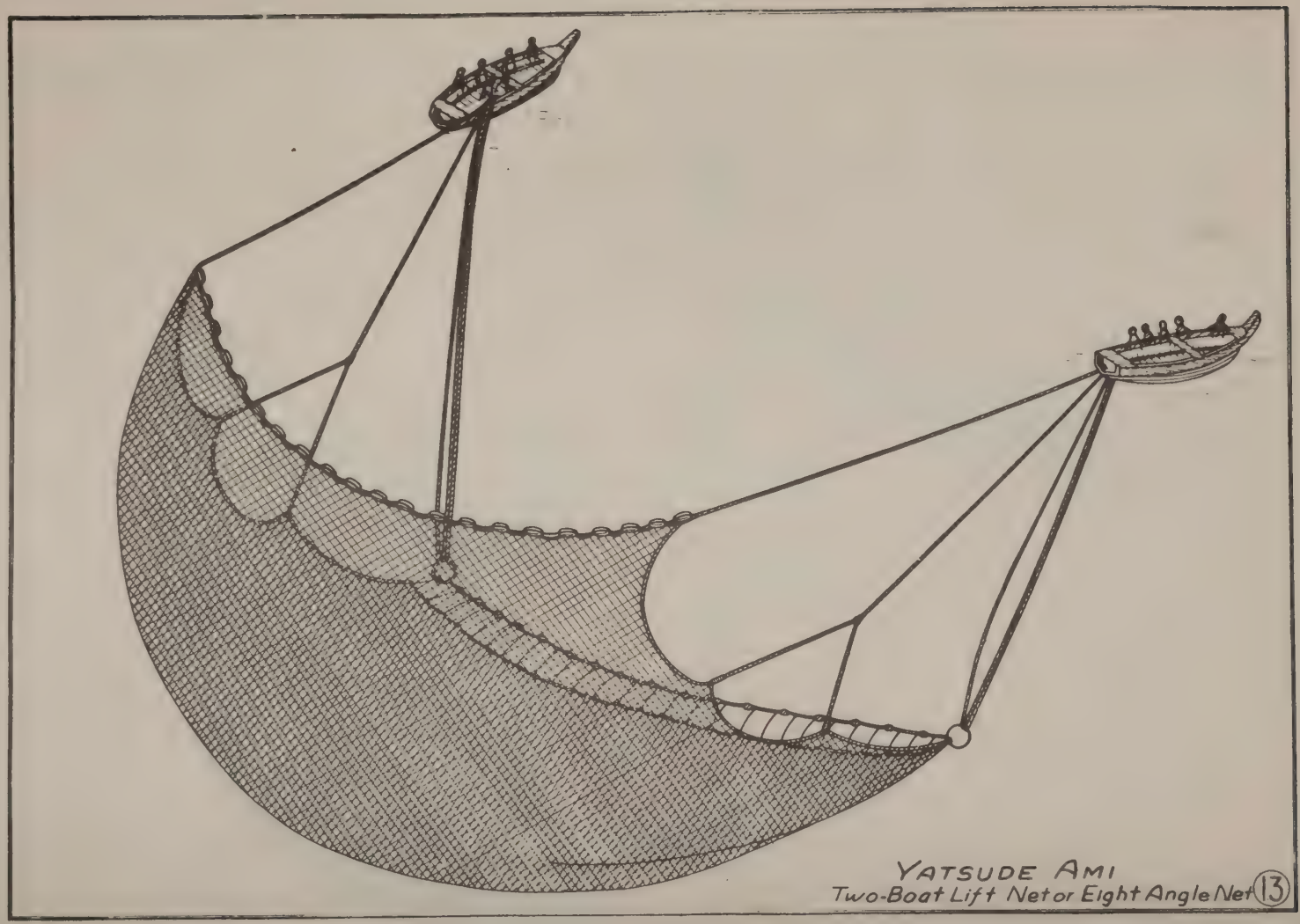
SPECIES: Sardine, mackerel, hardtail, and other species



Operation of BÔKE AMI (12)

Figure 12

Operation of the bōke ami



YATSUDE AMI
Two-Boat Lift Net or Eight Angle Net (13)

Figure 13

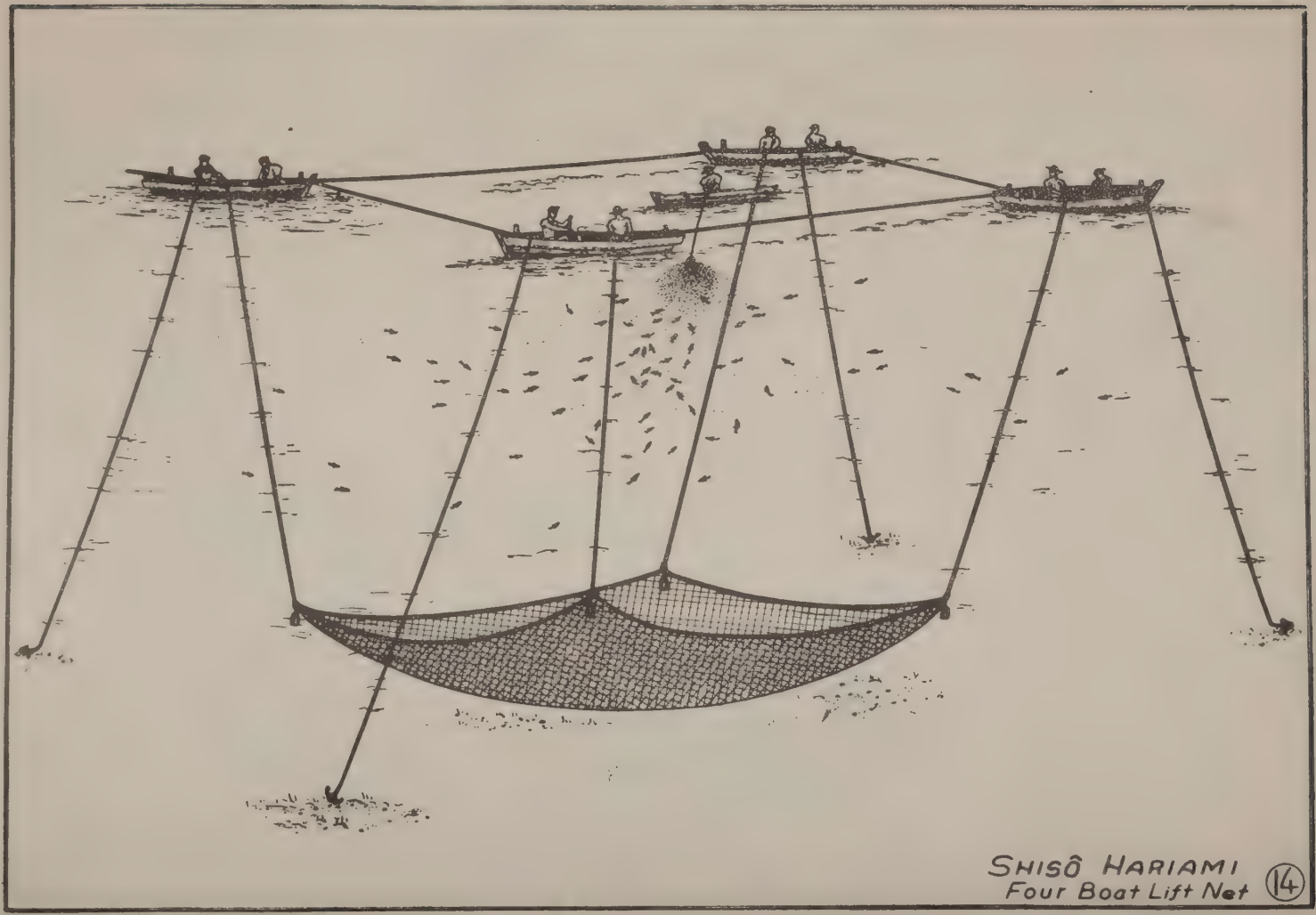
NAME: Two-boat lift net or eight-angle net (YATSUDE AMI)

CONSTRUCTION: Net made of cotton twine. It is equipped with a float line 70 to 80 meters long and a lead line of 35 to 40 meters. Mesh varies from two centimeters in the center to a larger mesh at the edges.

OPERATION: Except for the fact that two boats are used, the operation of this net is similar to that of the bōke ami (see Figure 12). It is not hauled vertically, but obliquely, much like a surface trawl.

DISTRIBUTION: Most commonly used in Okayama, Mie, and Chiba prefectures and Tokyo-to.

SPECIES: Sardine, mackerel, and hardtail



SHISÔ HARIAMI (14)
Four Boat Lift Net

Figure 14

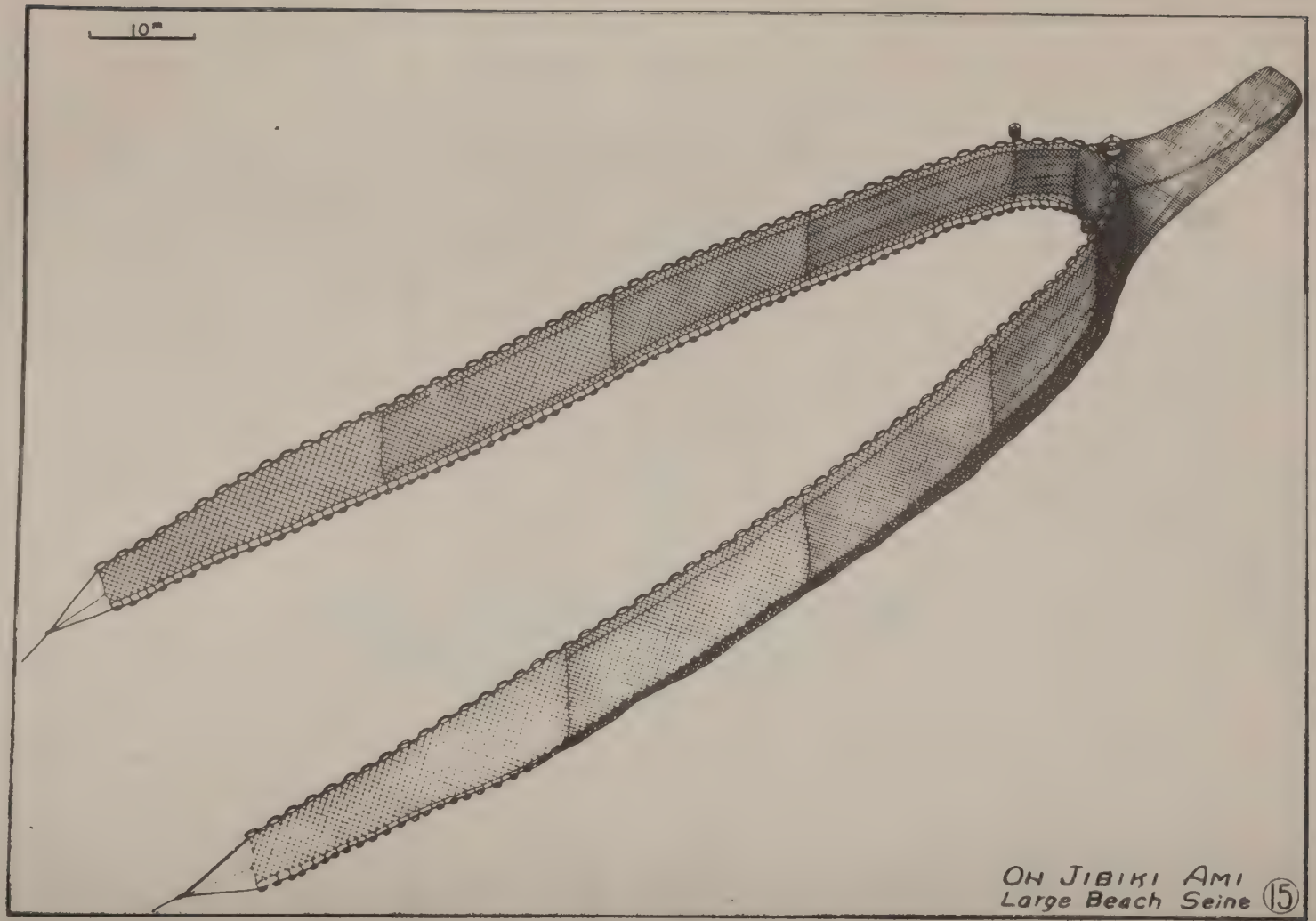
NAME: Four-boat lift net (SHISŌ HARI AMI)

CONSTRUCTION: The net is made of cotton twine netting and is about 50 meters square. Mesh varies from about 1.6 centimeters in the center to three centimeters at the edges.

OPERATION: Four boats, each anchored near a corner of the net, are roped together. The net is raised and lowered from these boats by ropes attached to the corners of the net. From a fifth boat moving over the center of the net a fisherman scatters bait. When a sufficient number of fish has been lured, the net is hauled.

DISTRIBUTION: Chiba, Shizuoka, and Wakayama prefectures, in the Izu Islands area, and Shikoku

SPECIES: Sardine, anchovy, mackerel, hardtail, and other schooling fish


10m
OH JIBIKI AMI
Large Beach Seine
15

BEACH SEINES AND TRAWLS (HIKI AMI)

The operation of beach seines and trawls is based on the principle of dragging a net to capture bottom fish. One edge of the net, weighted with sinkers, is dragged along the bottom, and the other edge is buoyed up by floats. Most of the nets in this group have pocket bunts or cod ends (fukuro or uwodori) of heavy meshed netting in which captured fish are held. Whereas beach seines are hauled on to beaches, trawls are operated from boats.

Figure 15

NAME: Large beach seine (OH JIBIKI AMI)

CONSTRUCTION: See illustration and explanation above. The ground line is made of straw twine, and the float line consists of two ropes. The hauling rope is of manila hemp. Nets vary from 100 to 1,500 meters in length, 10 to 15 meters in depth, and the pocket or cod ends are from 10 to 12 meters in length. The mesh of the wings is graduated from about 15 to 75 centimeters and the mesh near the center and of the cod end is 1.5 to two centimeters. The ground line and the float lines are 1.5 centimeters in diameter. The hauling rope is two centimeters in diameter and 1,500 meters long.

OPERATION: Operated from beaches by groups of 15 to more than 100 persons.

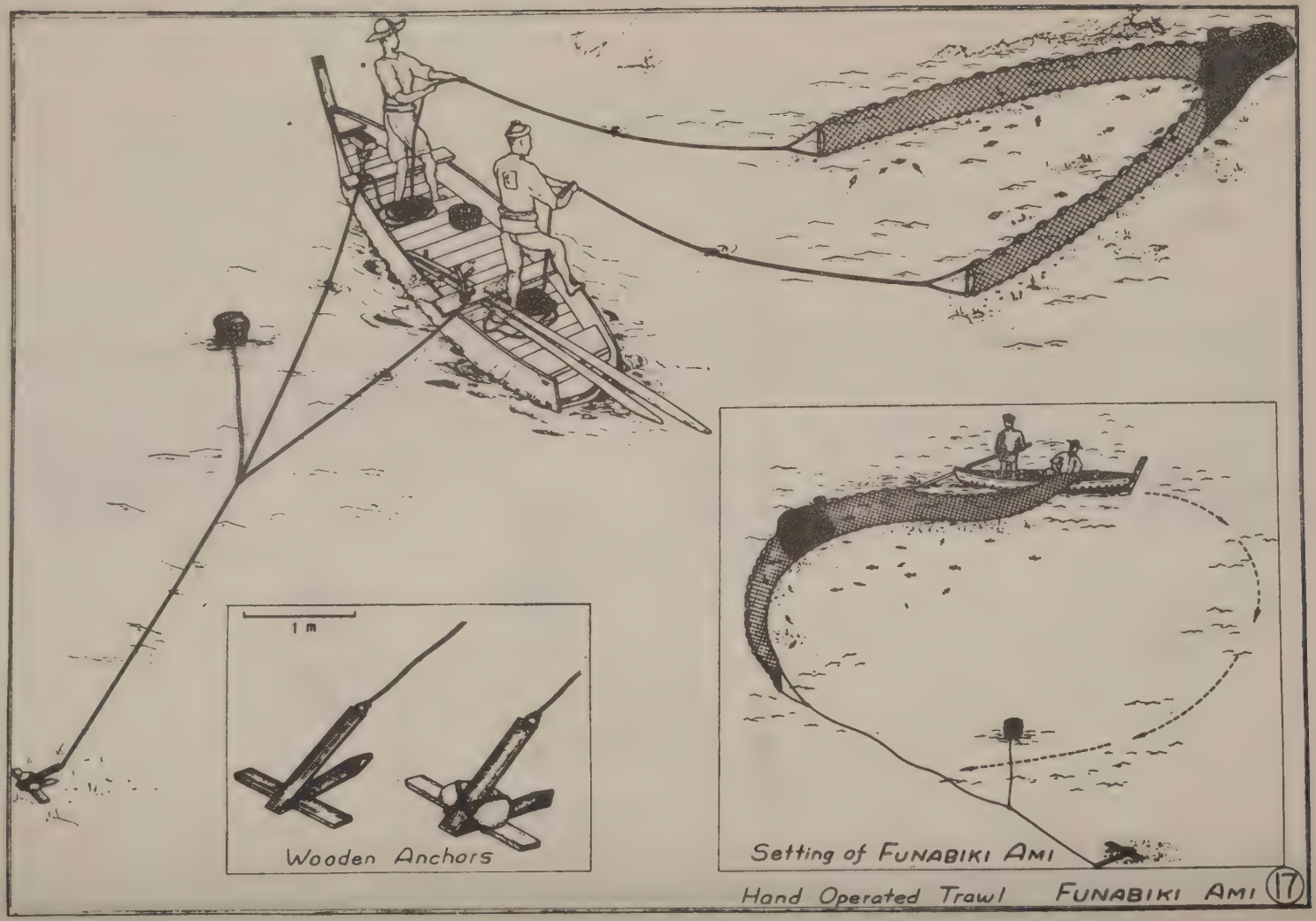
DISTRIBUTION: Common throughout Japan

SPECIES: Sardine, mackerel, Spanish mackerel, hardtail, seabream, and flatfish

Hauling of Large Beach Seine (16)

Figure 16

Hauling of large beach seine (OH JIBIKI AMI)



Hand Operated Trawl FUNABIKI AMI (17)

Figure 17

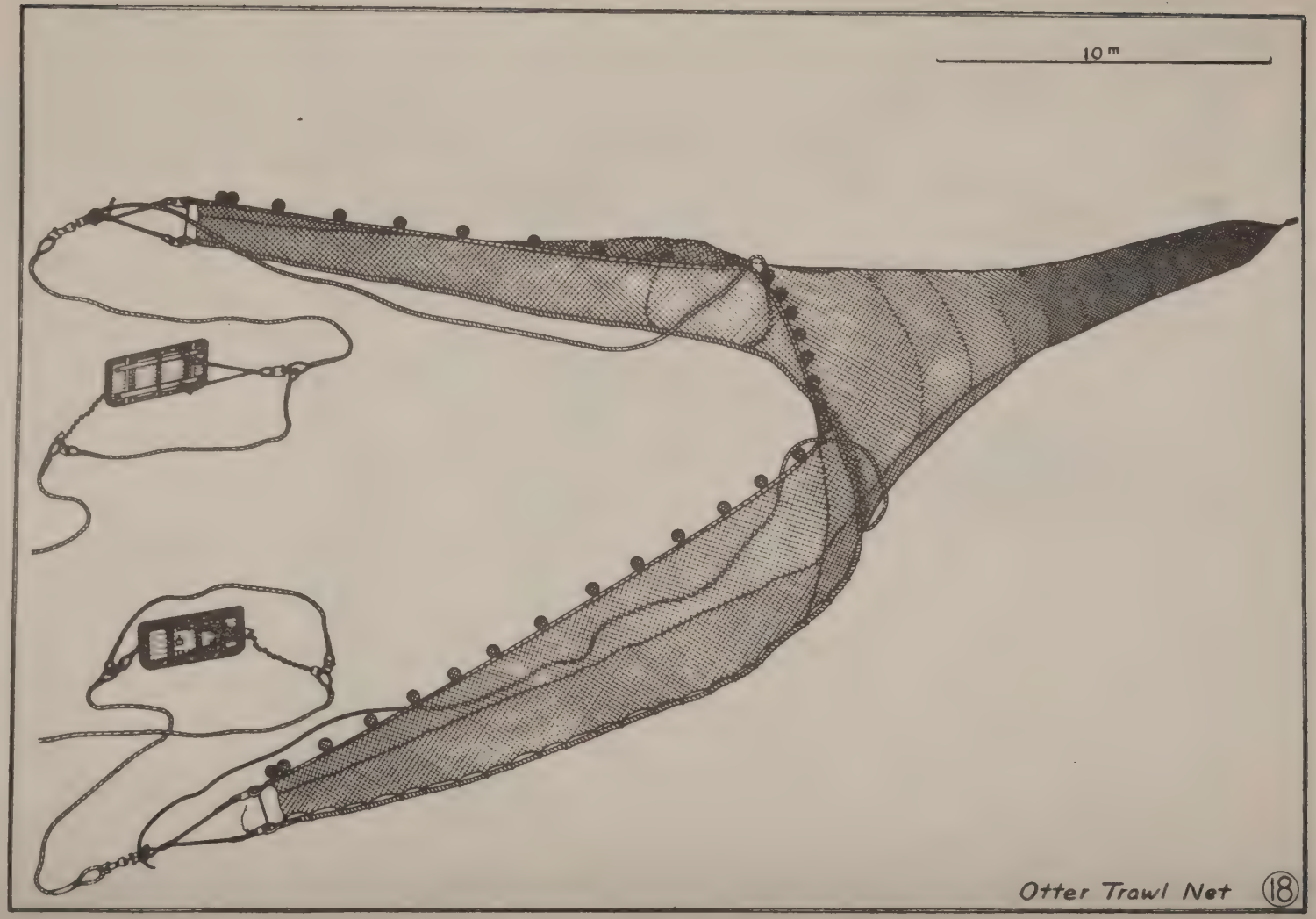
NAME: Hand operated trawl (FUNABIKI AMI)

CONSTRUCTION: Similar to oh jibiki ami (see Figure 15). Both net and mesh size varies widely according to species sought.

OPERATION: Similar to oh jibiki ami. Sticks are sometimes placed vertically at the front end of the wings to hold the float and lead lines rigidly apart. Most of these nets have removable pockets which can be replaced by pockets of other mesh sizes.

DISTRIBUTION: Common throughout Japan and accounts for a substantial catch.

SPECIES: Sea bream, flatfish, dab, gurnard, and other species found in shallow, sandy bottoms. It is used for perch, black sea bream, and other fish in seaweed areas. Whitebait is also caught with this net by using a bunt of very fine mesh.



Otter Trawl Net (18)

Figure 18

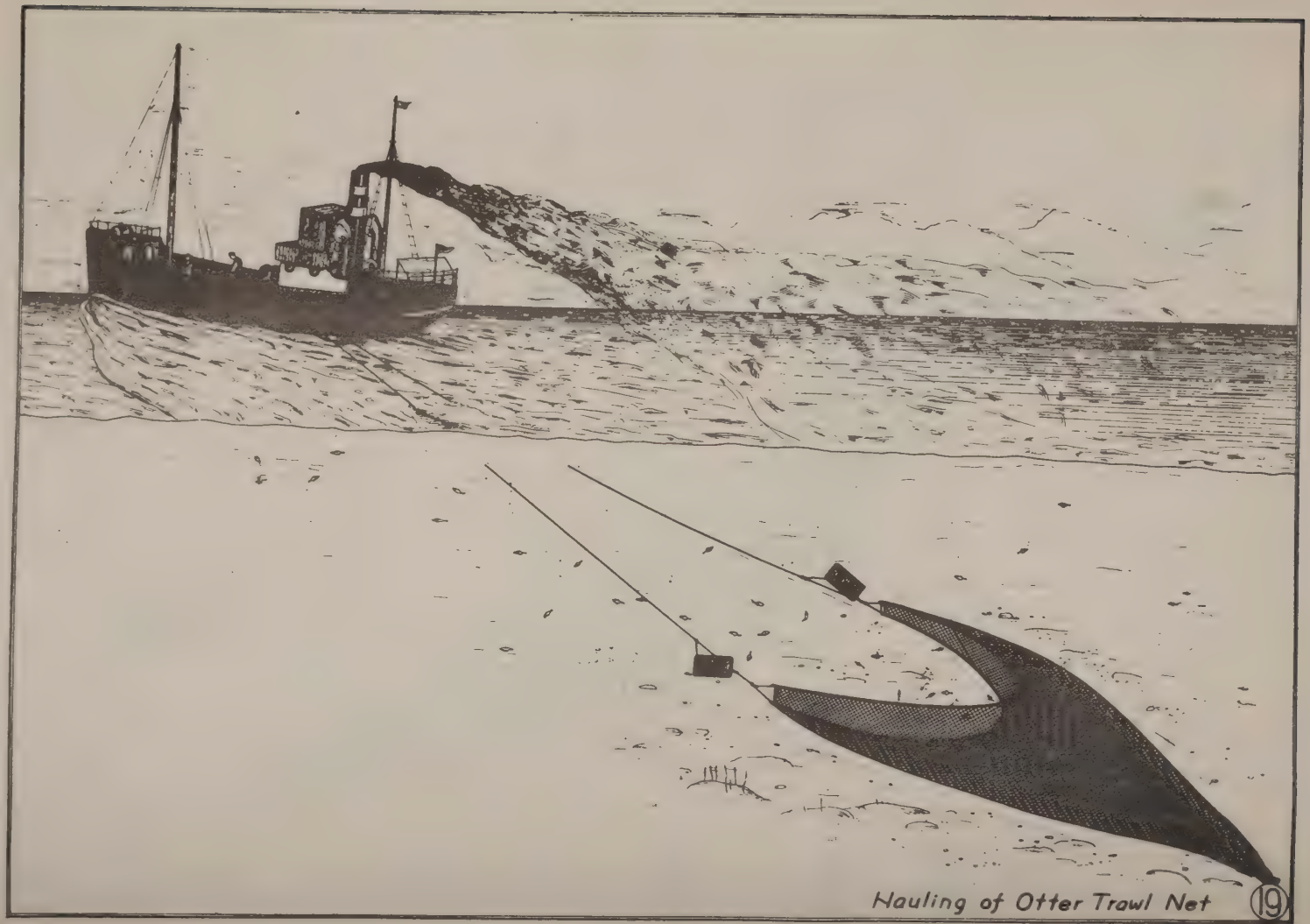
NAME: Otter trawl

CONSTRUCTION: The net is 35 to 50 meters long. The cod end has a mesh of four centimeters and the wings a mesh of seven centimeters.

OPERATION: This net is designed to be dragged by a vessel along the sea bottom to depths of about 320 meters. The wings are held open by otter boards placed diagonally against the current. The vessel, a steam or Diesel trawler, has a crew of 20 to 60 men.

DISTRIBUTION: Trawling was carried on at all seasons of the year in the East China and Yellow seas, seasonably in the Ohkotsk and Bering seas, and in distant foreign waters. Home ports of the trawlers were Shimonoseki, Tobata, and Nagasaki.

SPECIES: Sea bream, groupers, sharks, cod, flatfish, and other bottom-feeding fish

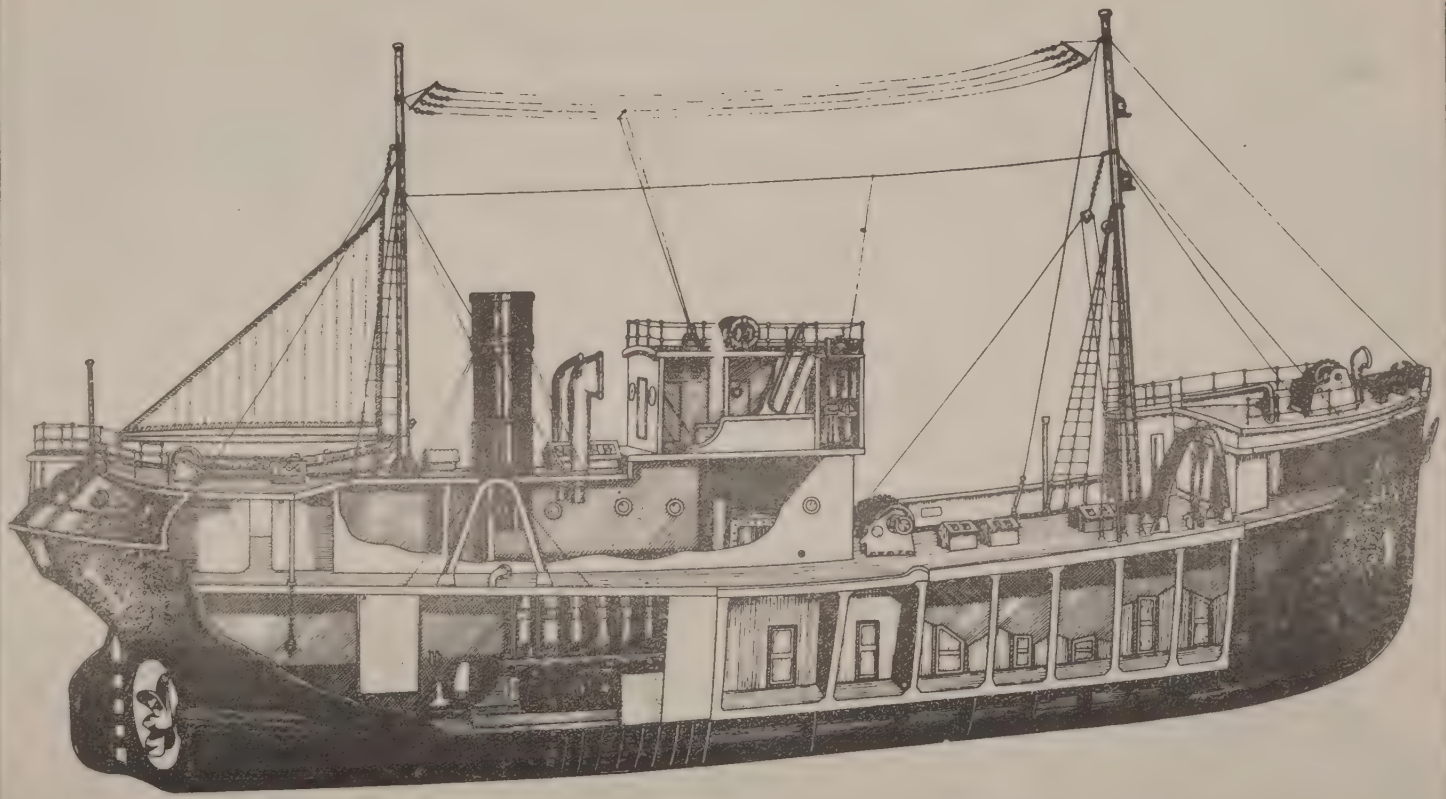


Hauling of Otter Trawl Net (19)

Figure 19

Hauling an otter trawl

About 250 Ton



Trawl Boat (20)

Figure 20

A typical Japanese trawler of 250 tons

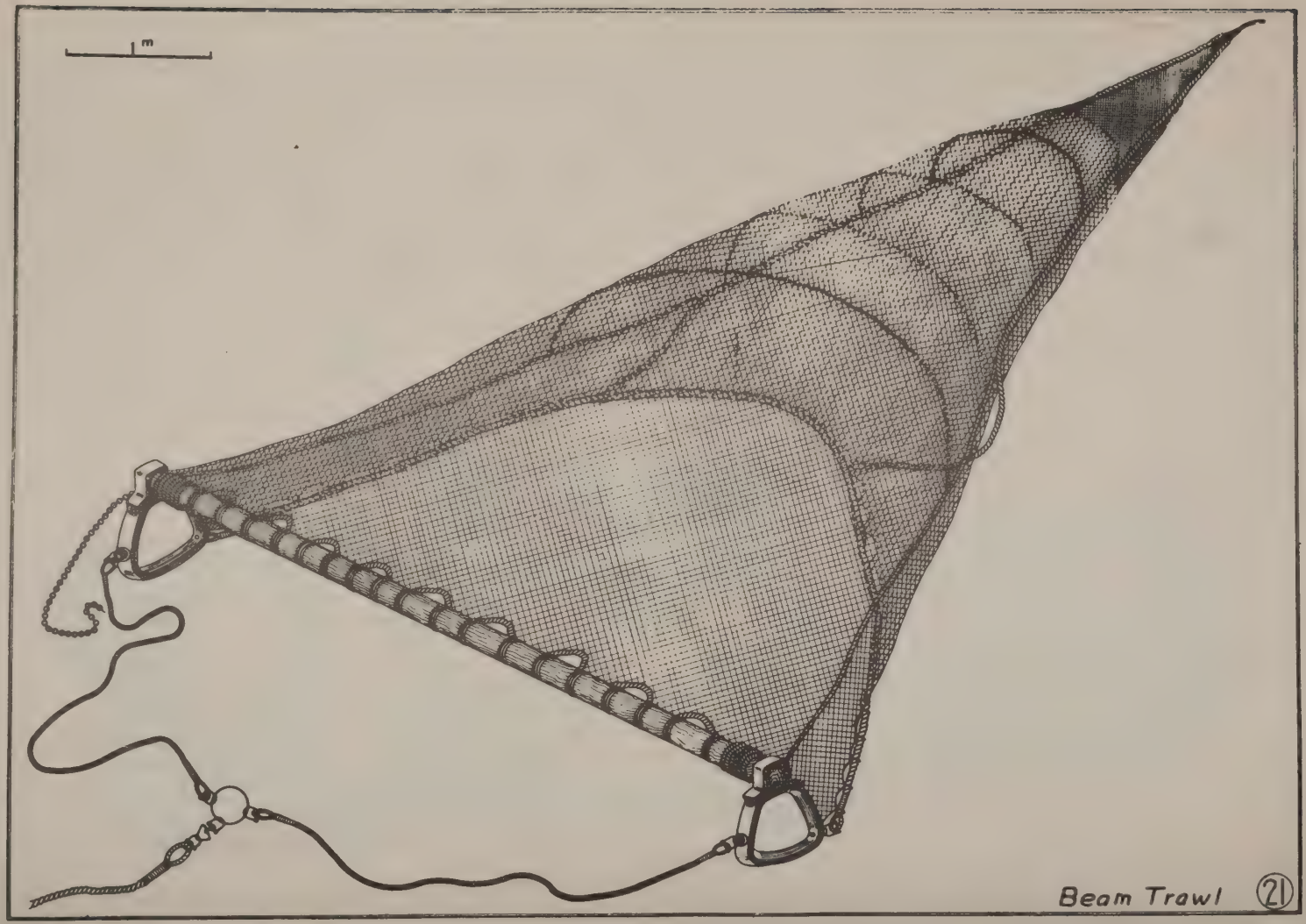

1 m
Beam Trawl
21

Figure 21

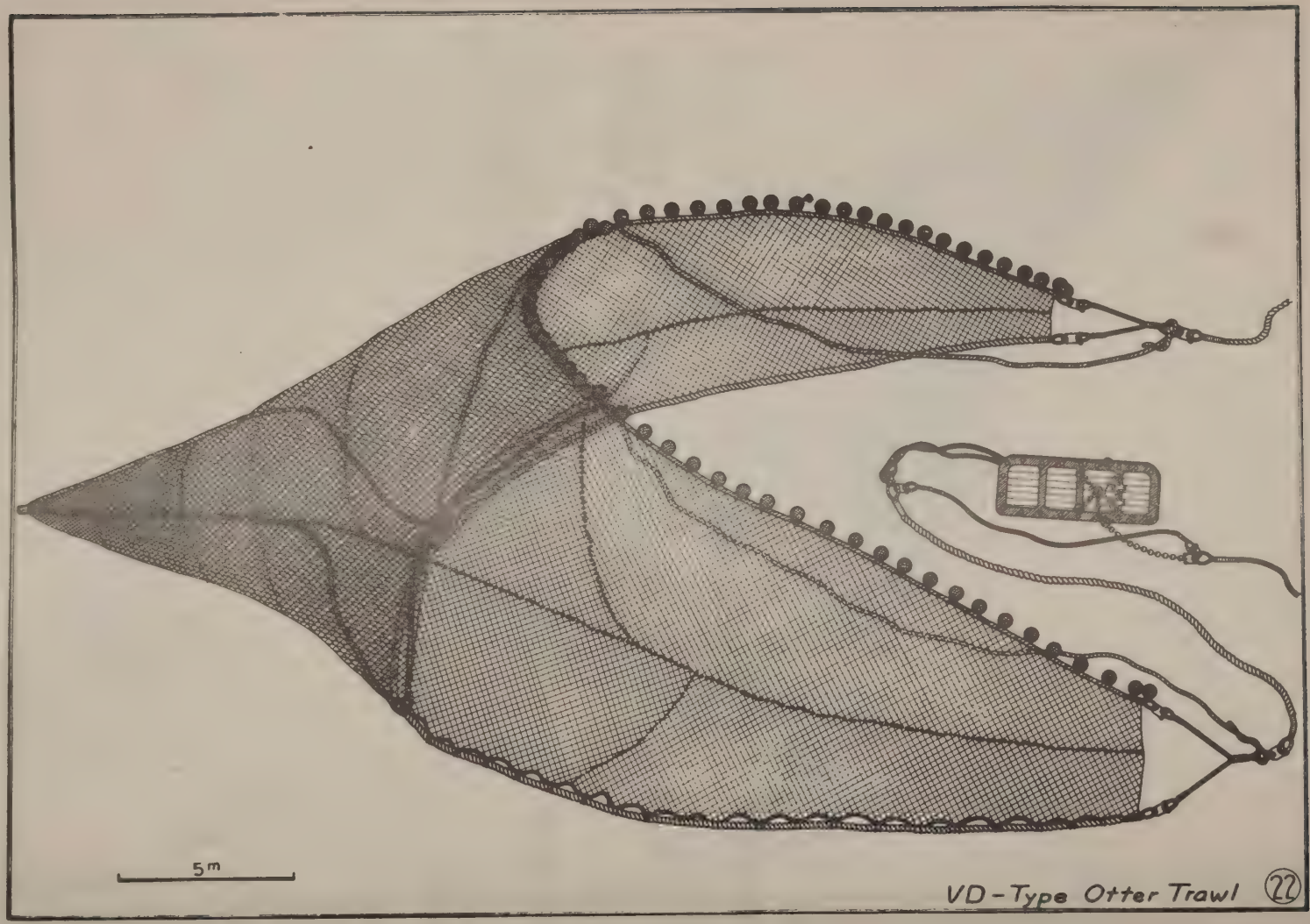
NAME: Beam trawl

CONSTRUCTION: The net is much smaller than otter trawl. Some are eight to 10 meters in length.

OPERATION: Same as otter trawl (Figure 18) except that the net is held open by a beam instead of otter boards. It is operated in depth of from 30 to 100 meters on both sandy and muddy bottoms.

DISTRIBUTION: Once used extensively by sailing vessels in coastal waters of Japan and in the Yellow, East China, and Okhotsk seas. It is now largely replaced by the two-boat and otter trawl.

SPECIES: Bottom feeding fish



VD-Type Otter Trawl (22)

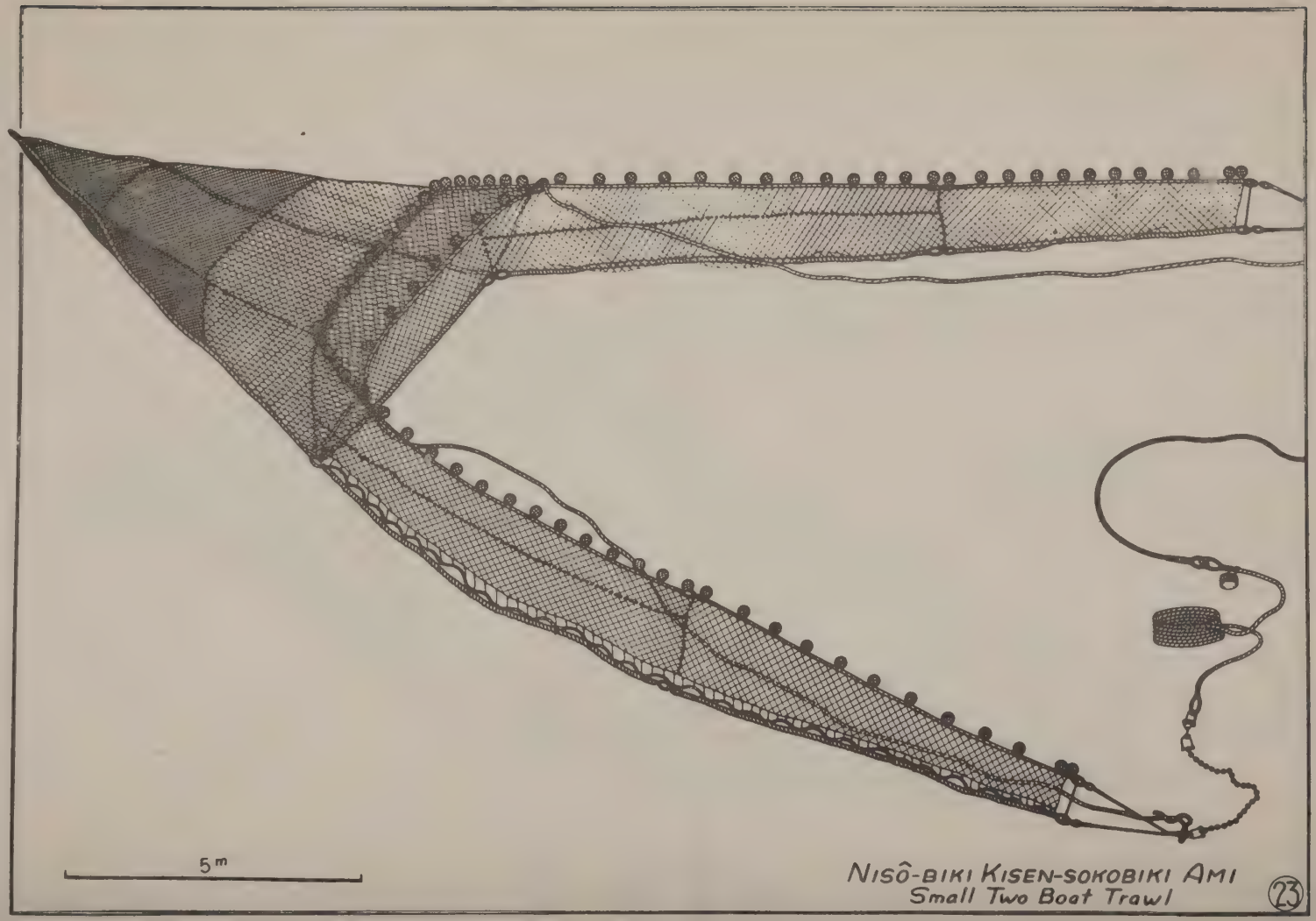
Figure 22

NAME: VD-Type otter trawl

CONSTRUCTION: This trawl is a modification of the otter trawl (Figure 18) and is used in a similar manner.

DISTRIBUTION: Used in same waters as otter trawl, chiefly in the East China and Yellow seas.

SPECIES: Same as otter trawl



NISÔ-BIKI KISEN-SOKOBIKI AMI
Small Two Boat Trawl

(23)

Figure 23

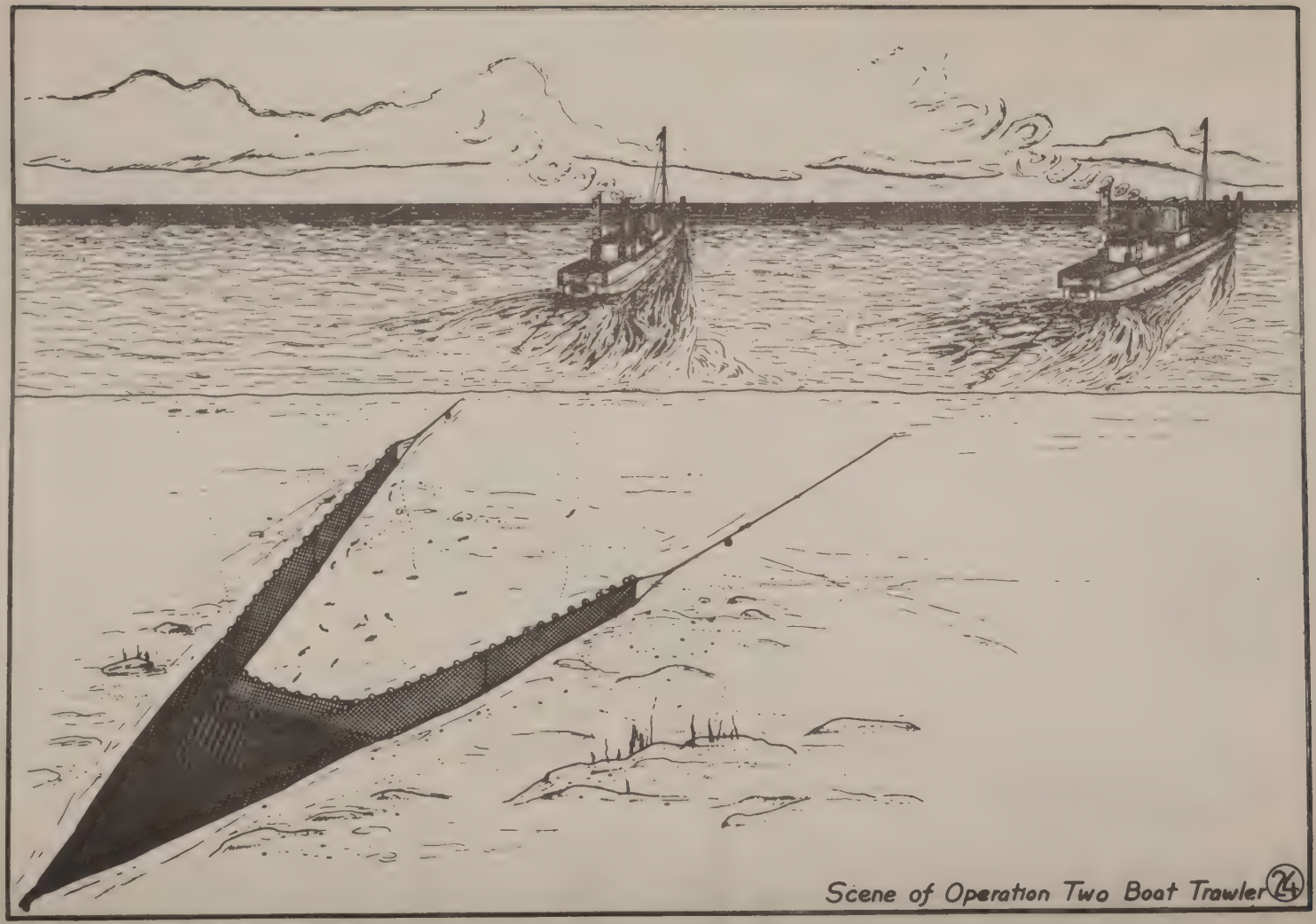
NAME: Small two-boat trawl (NISŌ-BIKI KISEN-SOKOBIKI AMI)

CONSTRUCTION: The head rope is 90 meters long and the double ground line, which is weighted by chains, is 80 meters long. The hauling rope, about 850 meters long, is of wire 1.5 centimeters in diameter.

OPERATION: This trawl, operated from two boats spaced to hold the net open, is used in coastal waters of 60 to 120 meters in depth on sandy and muddy bottoms. The boats are 50 or more tons with 100 horsepower motors. A crew of about 10 man the vessel.

DISTRIBUTION: Chiefly used in Yamaguchi, Nagasaki, and Shimane prefectures.

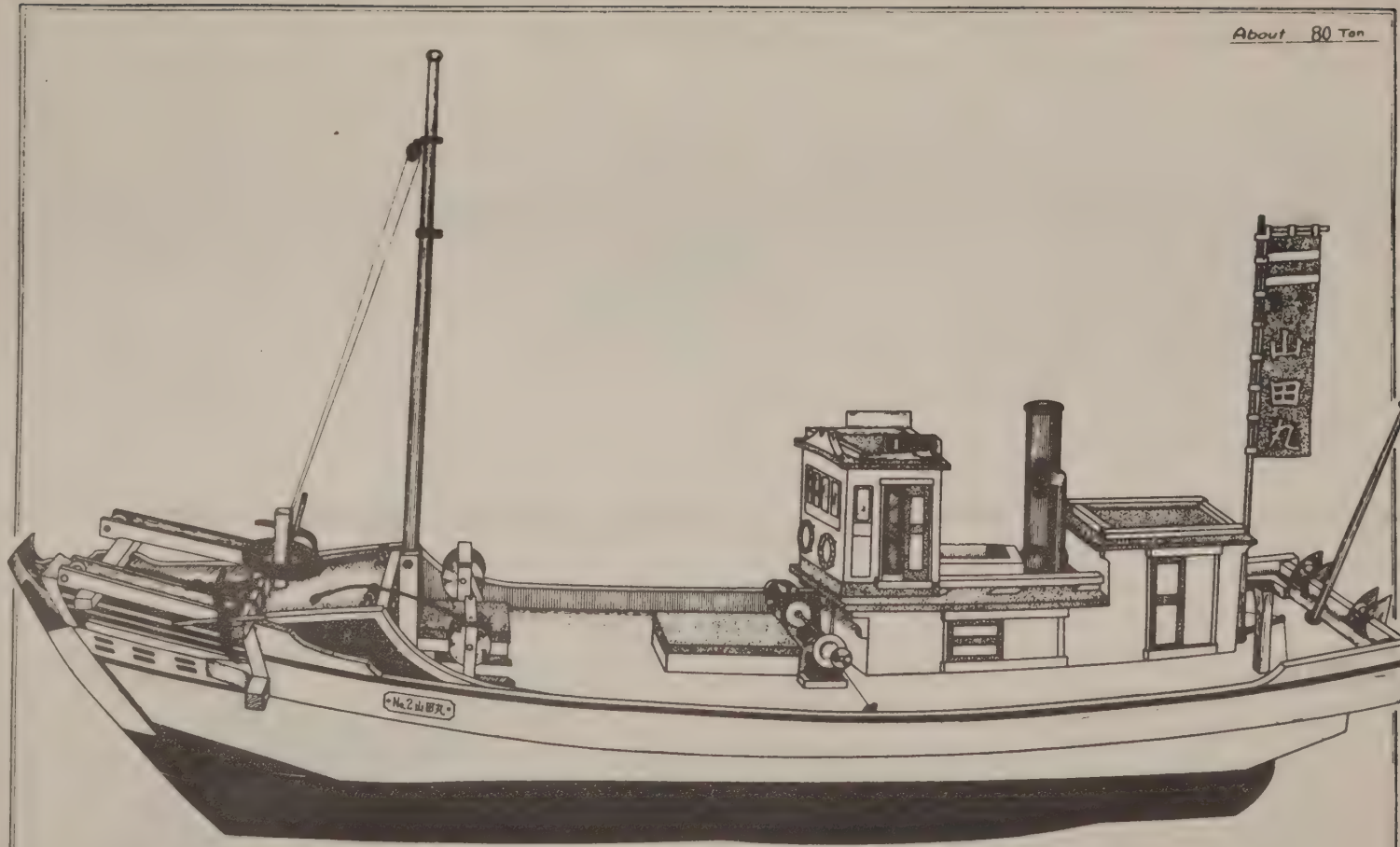
SPECIES: Bottom-feeding fish



Scene of Operation Two Boat Trawler (24)

Figure 24

Operation of the two-boat trawl



KISEN SOKOBIKIAMI GYOSEN
Two Boat Trawler
25

Figure 25

Two-Boat Tfawler (KISEN SOKOBIKI AMI GYOSEN)

This is typical of the older two-boat trawlers of Japan.

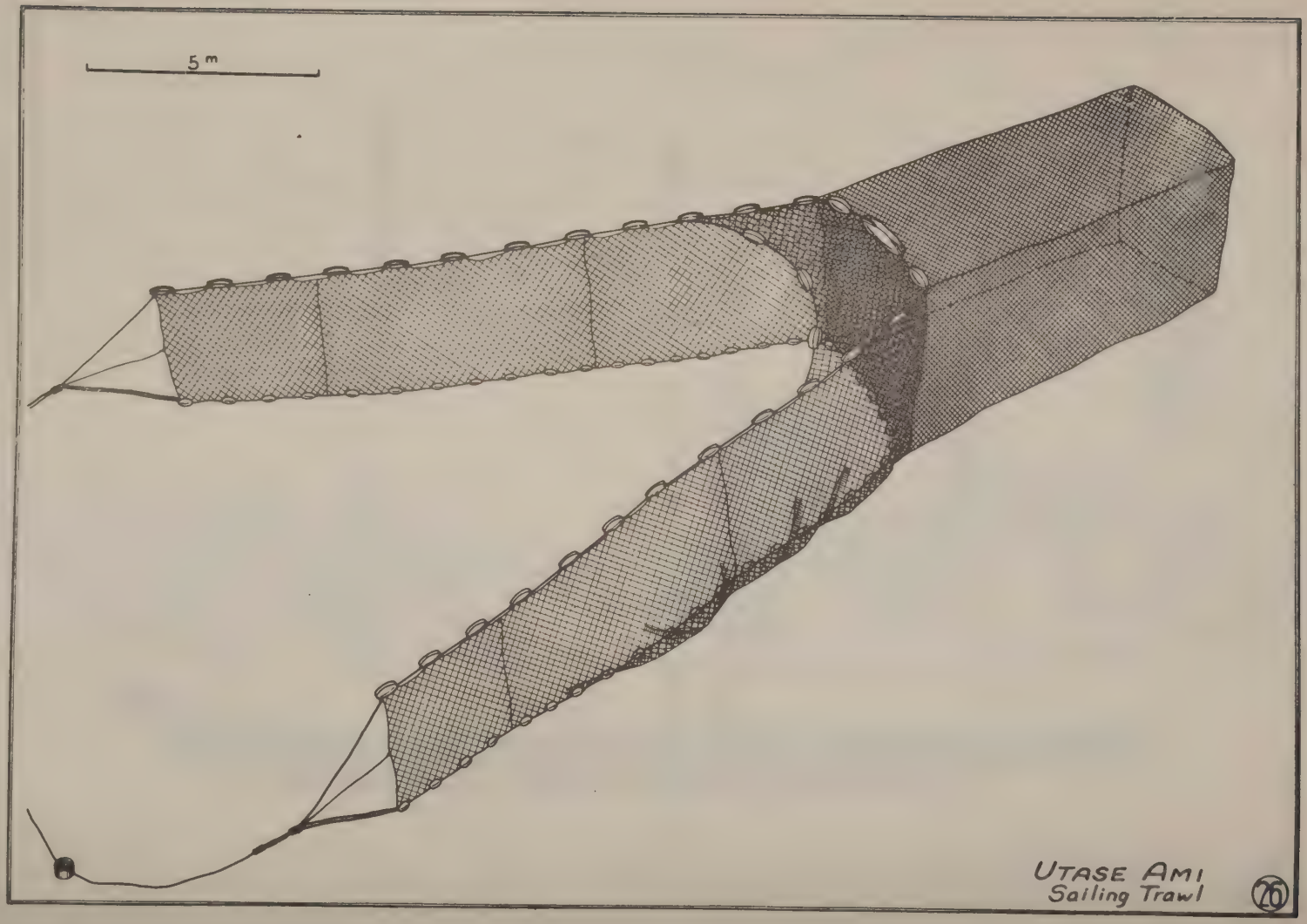

5 m
UTASE AMI
Sailing Trawl
26

Figure 26

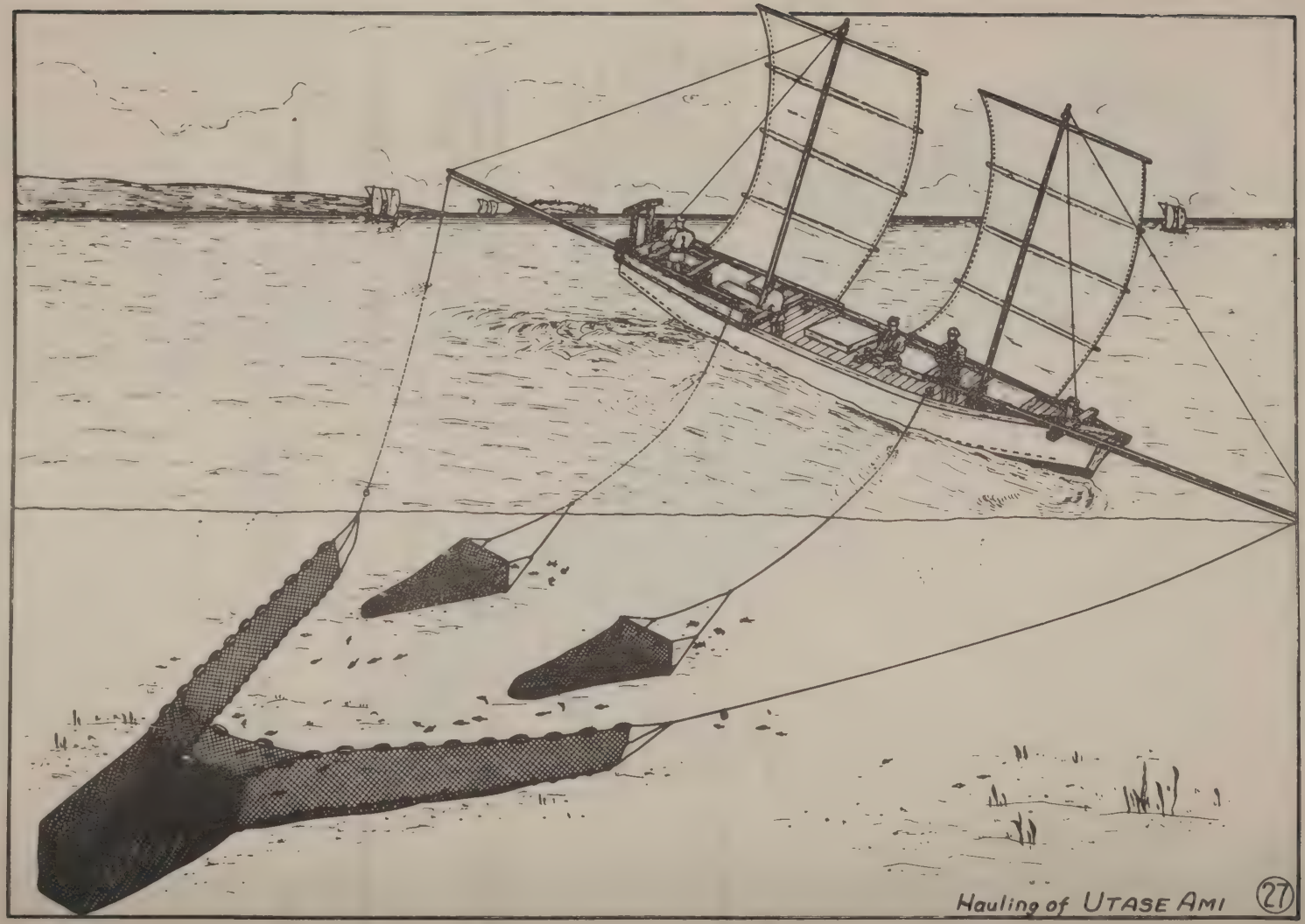
NAME: Small trawl used by sailing vessels (UTASE AMI)

CONSTRUCTION: The net is about 30 meters long, seven meters of which are taken up by the cod end. The netting of the anterior part of the wings has a 3.5-centimeter mesh, and the cod end has 2.5-centimeter mesh. The double head rope of palm twine is about 30 meters long and one centimeter in diameter. The single ground line is the same length and 1.5 centimeters in diameter. The manila hauling rope is about 125 meters long and two centimeters in diameter.

OPERATION: The net is dragged along the bottom by a sailboat moving sidewise. Frequently, a comb-like dredge is attached to the ground line to assist in collecting crabs and shellfish. Three to six men carry out the operation.

DISTRIBUTION: The net is used all year, especially in Aicni and Mie prefectures and Tokyo-to.

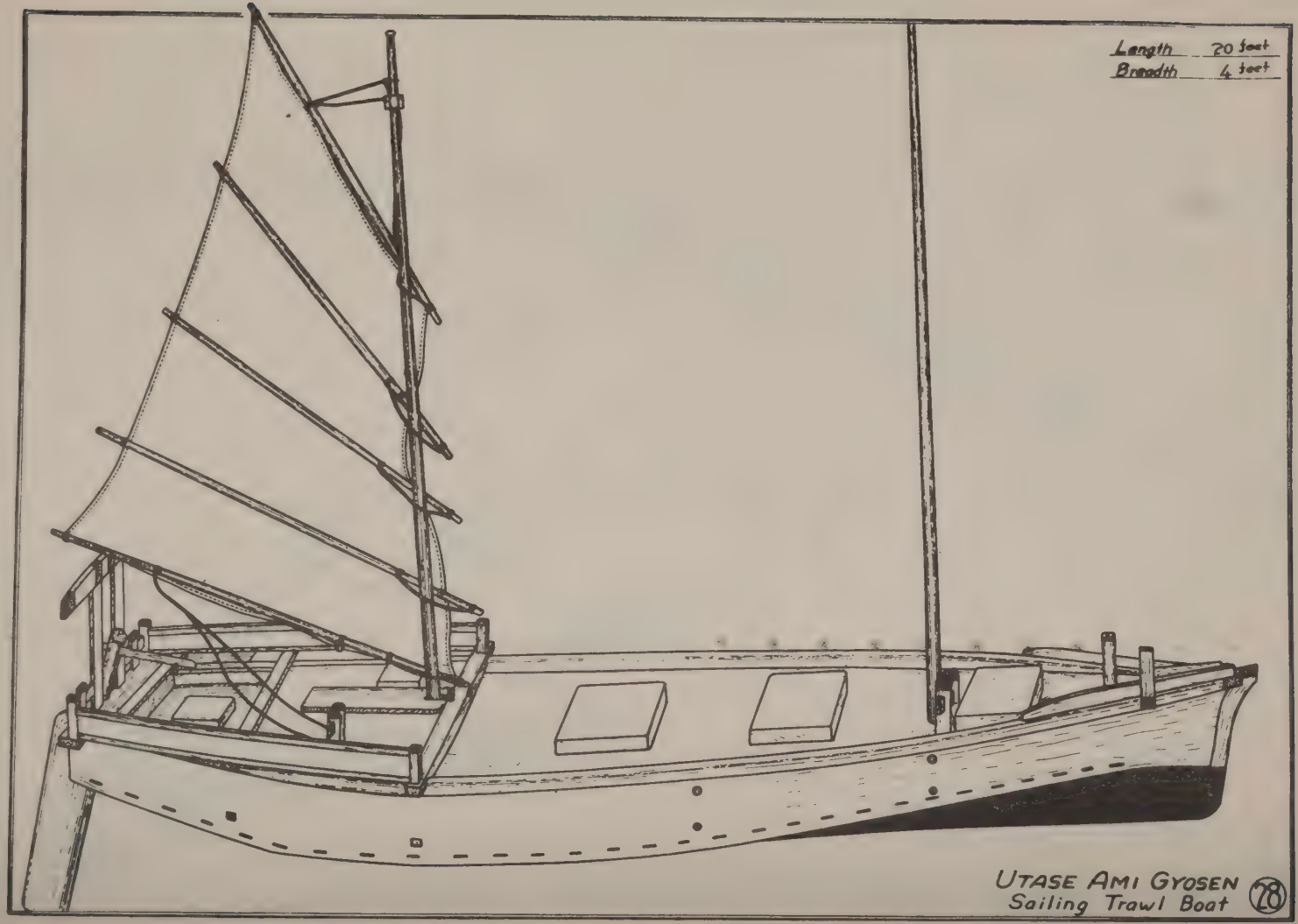
SPECIES: Shrimp, flatfish, crab, shellfish, and other species in waters of eight to 20 meters depth



Hauling of UTASE AMI (27)

Figure 27

Hauling of utase ami

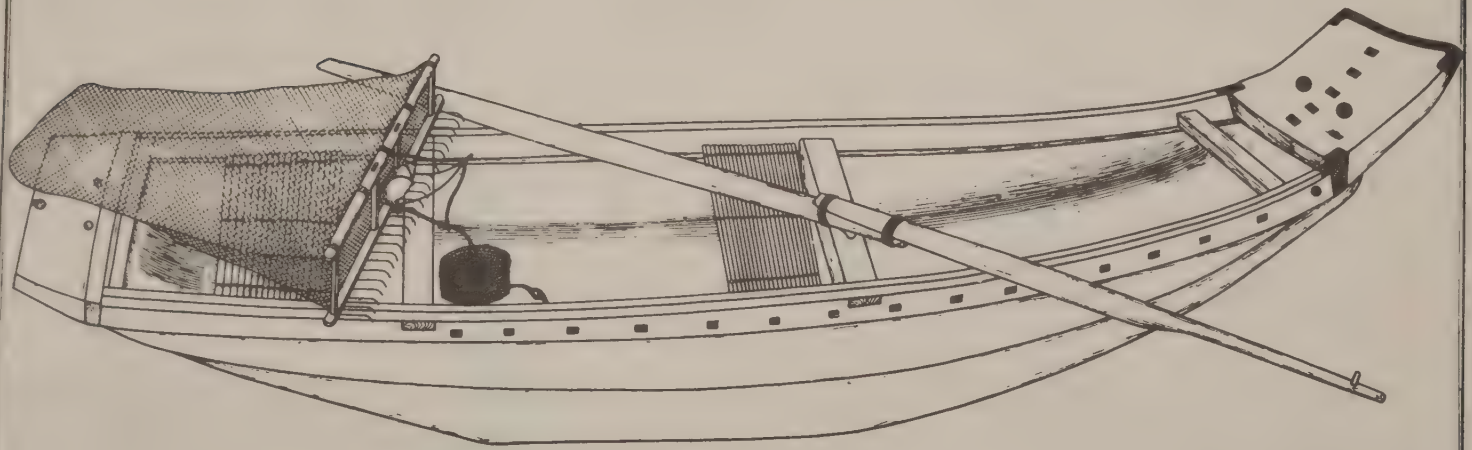


UTASE AMI GYOSEN (28)
Sailing Trawl Boat

Figure 28

Sailing trawl boat (UTASE AMI GYOSEN)

Length 12 feet
Breadth 3 feet

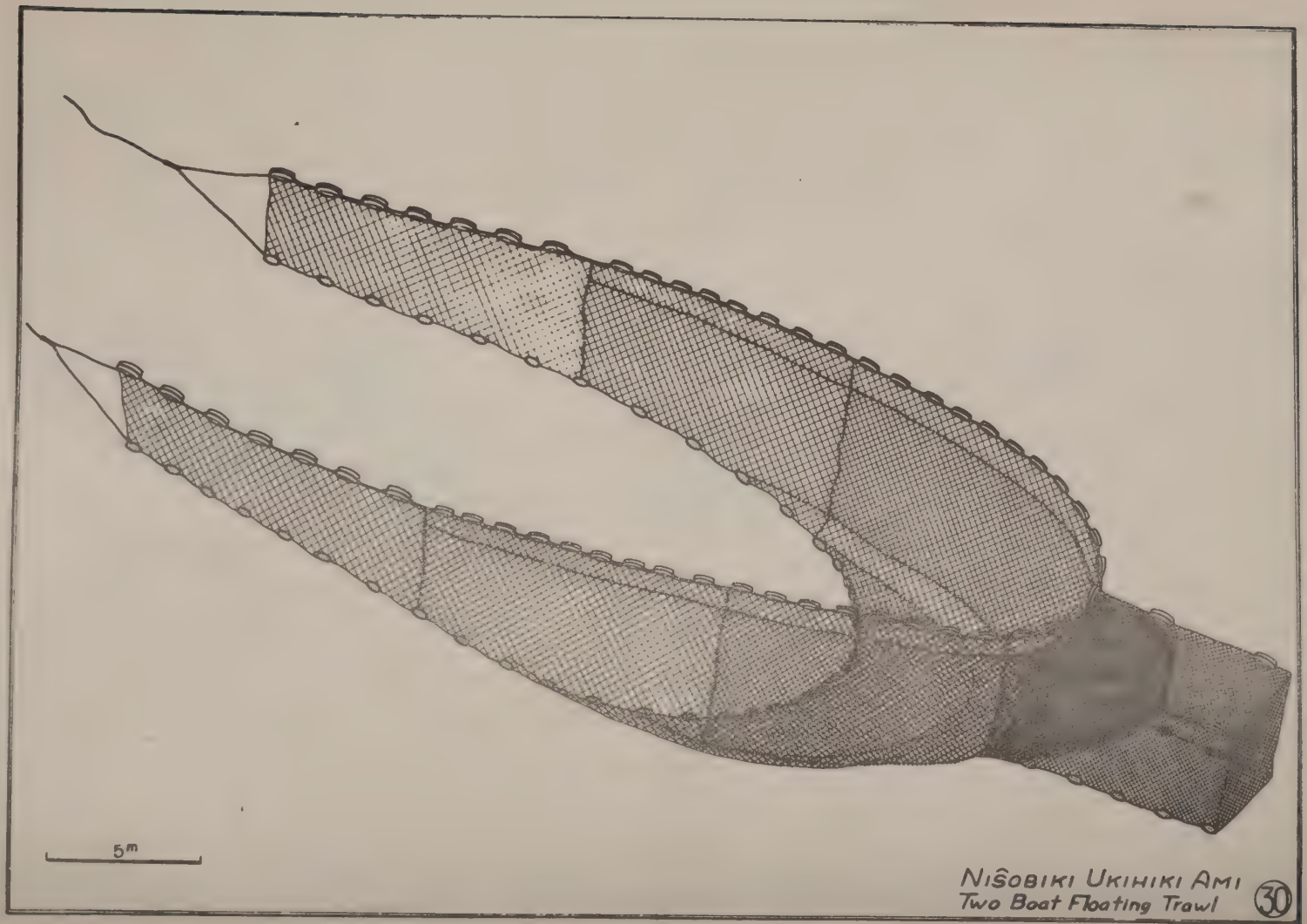


SOKORIBUNE (29)
Dredging Boat

Figure 29

Dredging Boat (SOKORIBUNE)

This is used with the comb-like dredge to catch clams, shrimp, and white-bait. It is common throughout Japan.



NISOBIKI UKIHIKI AMI
Two Boat Floating Trawl
30

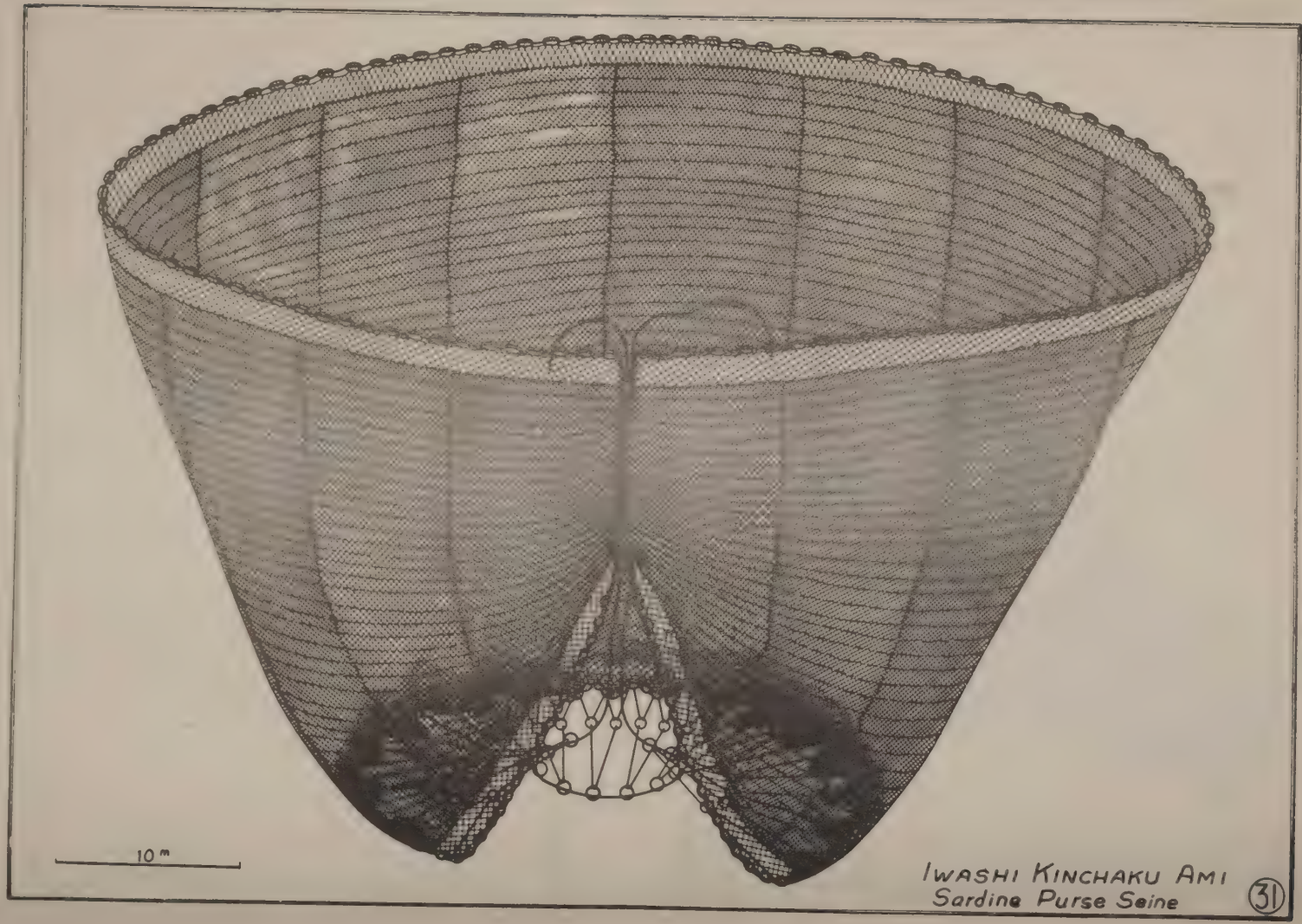
Figure 30

NAME: Two-boat floating trawl (NISŌBIKI UKIHIKI AMI)

CONSTRUCTION: Similar to the bottom trawls except that the posterior part of the wings is provided with a bottom, and the relative weight of float and lead lines is such as to keep the net near the surface.

OPERATION: This net was a wartime innovation devised to be used by boats which formerly trawled for bottom fish, net replacements for bottom trawls being unavailable during World War II.

DISTRIBUTION: No longer used.



IWASHI KINCHAKU AMI
Sardine Purse Seine

31

PURSE SEINES AND OTHER ENCIRCLING NETS (KINCHAKU AMI)

These nets are designed to capture schools of fish by surrounding them.

Figure 31

NAME: Sardine purse seine (IWASHI KINCHAKU AMI)

CONSTRUCTION: Adapted from those in use in the United States. The net is 300 to 400 meters long and about 70 meters deep in the center. The netting of the wings has a 1.5-centimeter mesh and the bunt one centimeter. The diameter of the double float line of palm rope is one centimeter and of the single ground line is 1.3 centimeters.

OPERATION: See Figure 32. Two-powered vessels of 25 gross tons and two small boats are used in hauling the nets. A packer boat of about 20 tons usually accompanies the operating vessels. The main fishing season is from September to December.

DISTRIBUTION: Chiba, Ibaraki, Miyagi, and Nagasaki prefectures and Tokyo-to

SPECIES: Sardines, herring, and mackerel

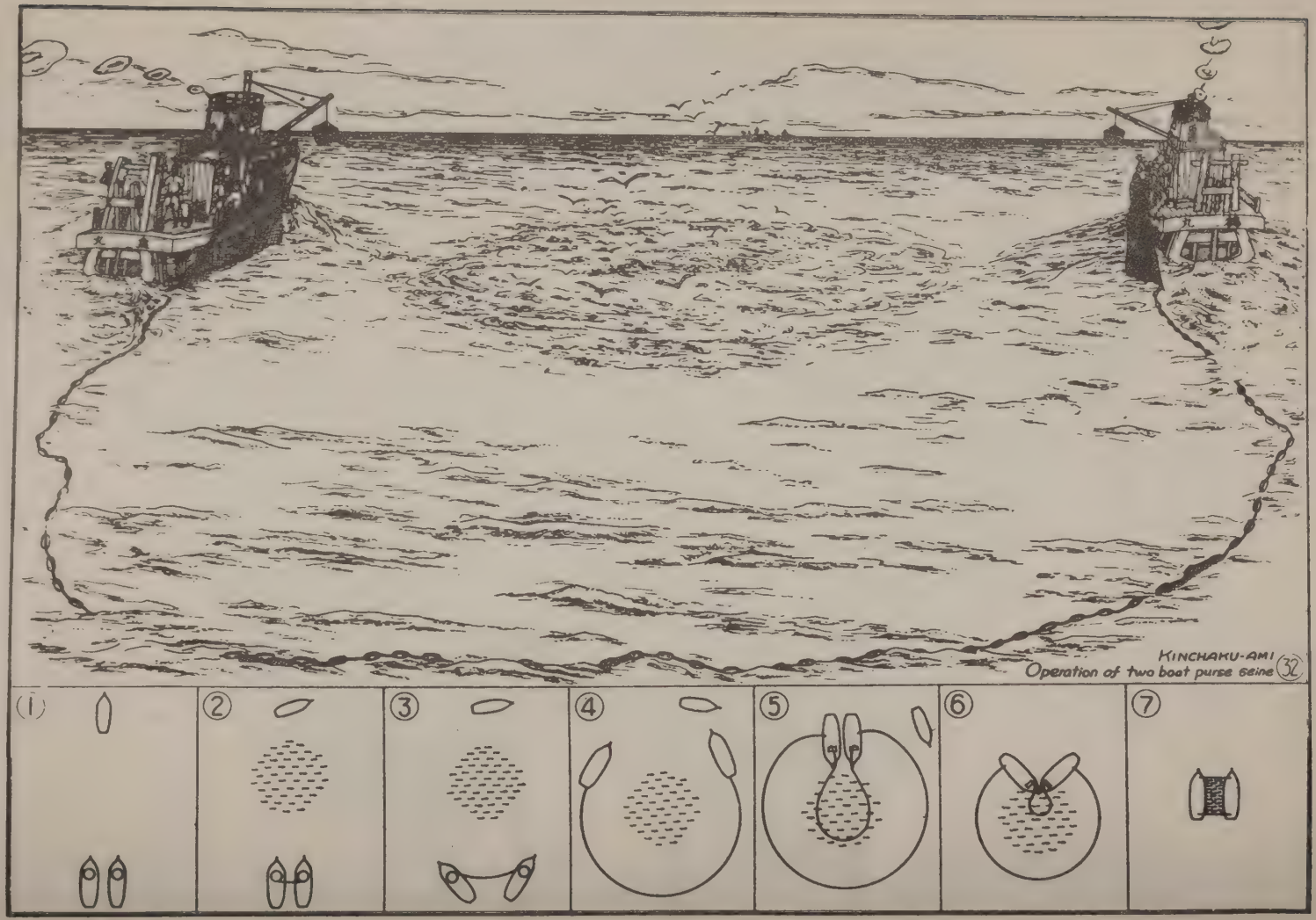

KINCHAKU-AMI
Operation of two boat purse seine (32)
①
②
③
④
⑤
⑥
⑦

Figure 32

The operation of the two-boat purse seine (KINCHAKU AMI)

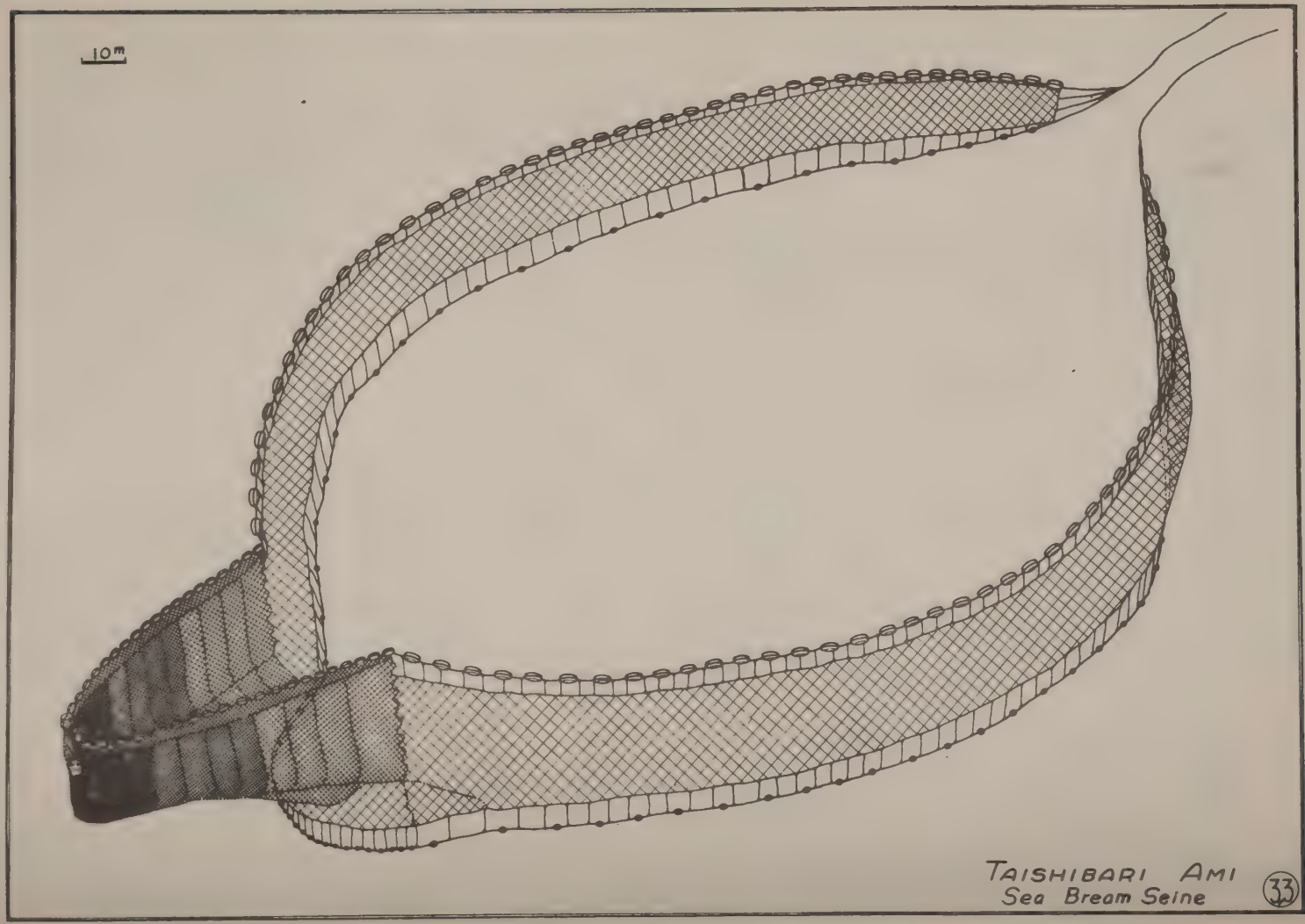

10m
TAISHIBARI AMI
Sea Bream Seine
33

Figure 33

NAME: Sea bream seine (TAISHIBARI AMI)

CONSTRUCTION: The net is 700 meters long. The mesh of netting in the wings is about five centimeters, of the center portion two centimeters, and of the pocket one centimeter. The head rope of palm twine is 1.5 centimeters in diameter; the ground rope of straw twine consists of two ropes, one of which is three centimeters and the other two centimeters in diameter.

OPERATION: The net is set around a school of fish in the same manner as a purse seine but is hauled like a beach seine or trawl.

DISTRIBUTION: Inland Sea region

SPECIES: Used mainly for sea bream; also for Spanish mackerel, mackerel, and hardtail.

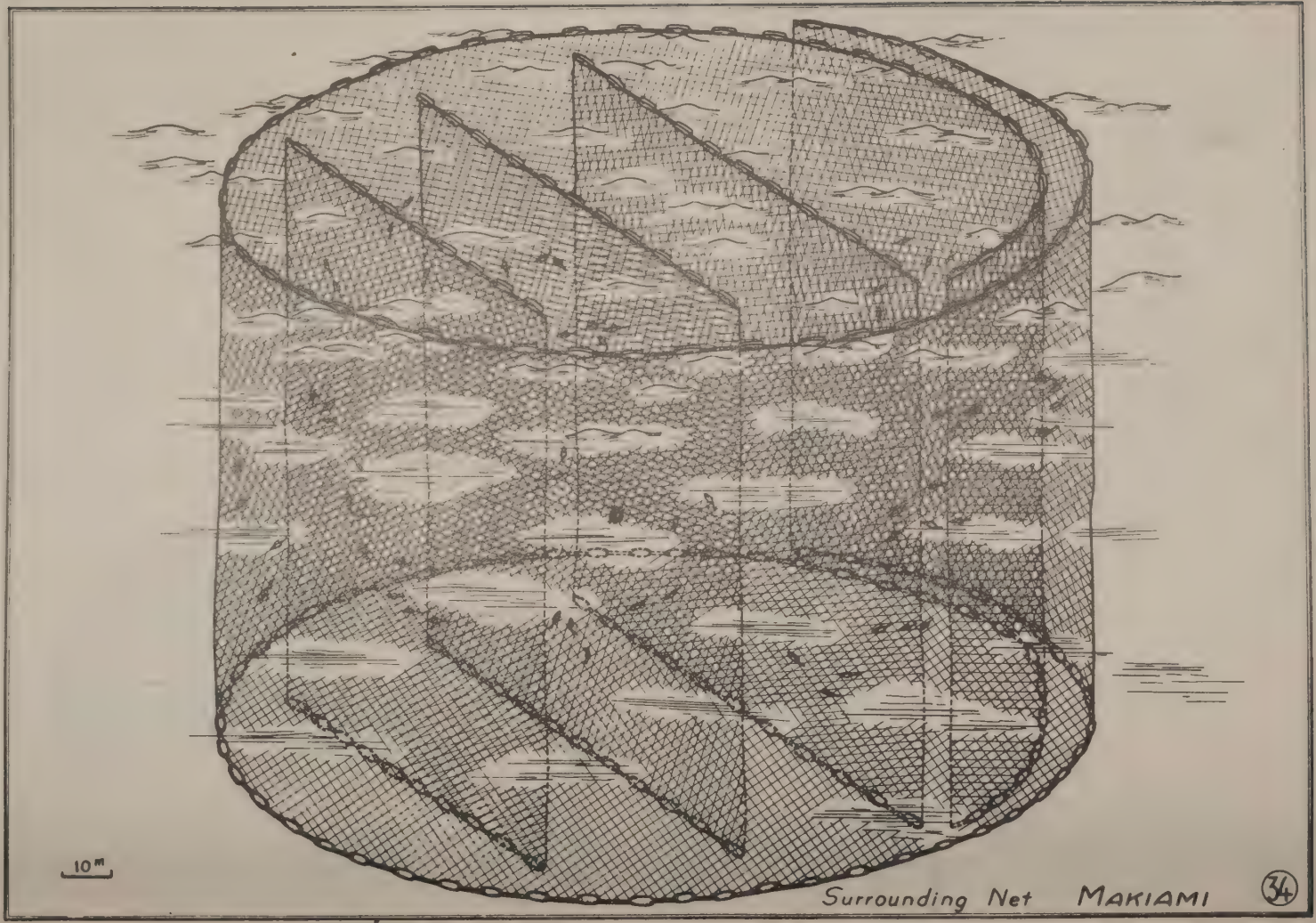

10m
Surrounding Net MAKIAMI
34

Figure 34

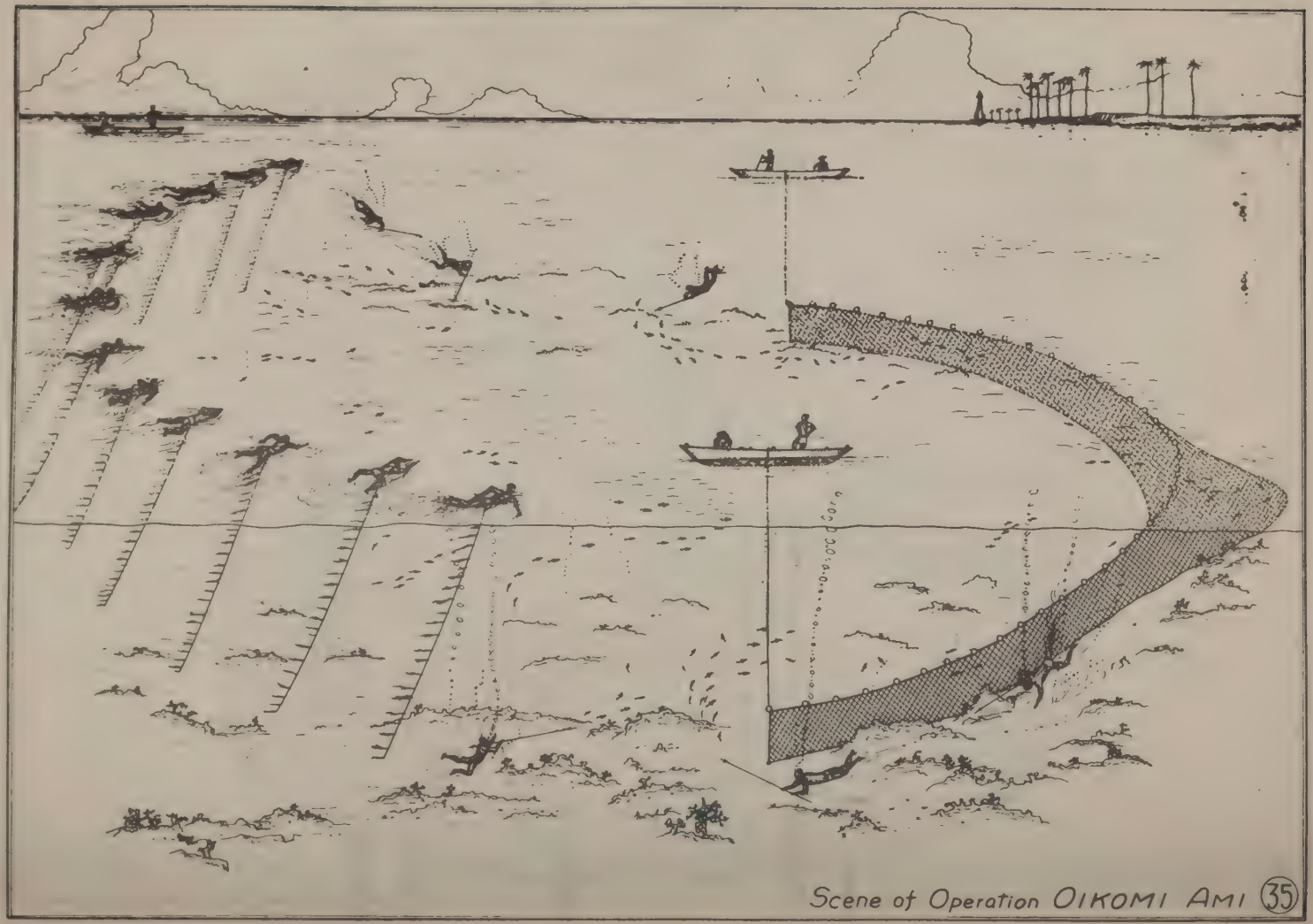
NAME: Surrounding net (MAKI AMI)

CONSTRUCTION: The surrounding net is 500 meters long and about 20 meters deep, consisting of several units about 85 meters long. The gill nets (naka sashi ami) are about 35 meters long. The mesh of the surrounding net is from 6.5 to eight centimeters. The gill nets have a mesh of seven centimeters. This gear consists of a surrounding net with one or more gill nets placed in the center. Both the surrounding net and the gill nets used inside it are made of linen twine.

OPERATION: After the fish are surrounded they are scared into the gill nets, in which they become entangled. Two vessels are used in setting this net. A third small boat is used to scare the fish away from the mouth of the circle and to set the gill nets.

DISTRIBUTION: Inland Sea region

SPECIES: "Inada", the immature stage of yellowtail (buri) is the main catch. For this reason the net is often referred to as "inada maki ami".



Scene of Operation OIKOMI AMI (35)

Figure 35

NAME: Driving-in net (OIKOMI AMI)

CONSTRUCTION: Designed for fishing in coral reef areas, this net has two wings set at an angle and a central removable bunt. The mesh is of cotton twine. The net is 50 to 100 meters long and three to five meters deep. Mesh size varies according to species sought, but is usually three to five centimeters.

OPERATION: Twenty to 100 fishermen and three to 10 boats are used. One group of fishermen swim, driving the fish into the net with scare ropes made of palm fibers or of cotton on which palm leaves have been fastened. Some of the fish become entangled in the wings of the net, some are driven into the bunt, and some are speared by divers.

DISTRIBUTION: Common throughout the coral island areas of the Pacific where trawls and seines cannot be used. Also common in Okinawan waters.

SPECIES: All coral reef species

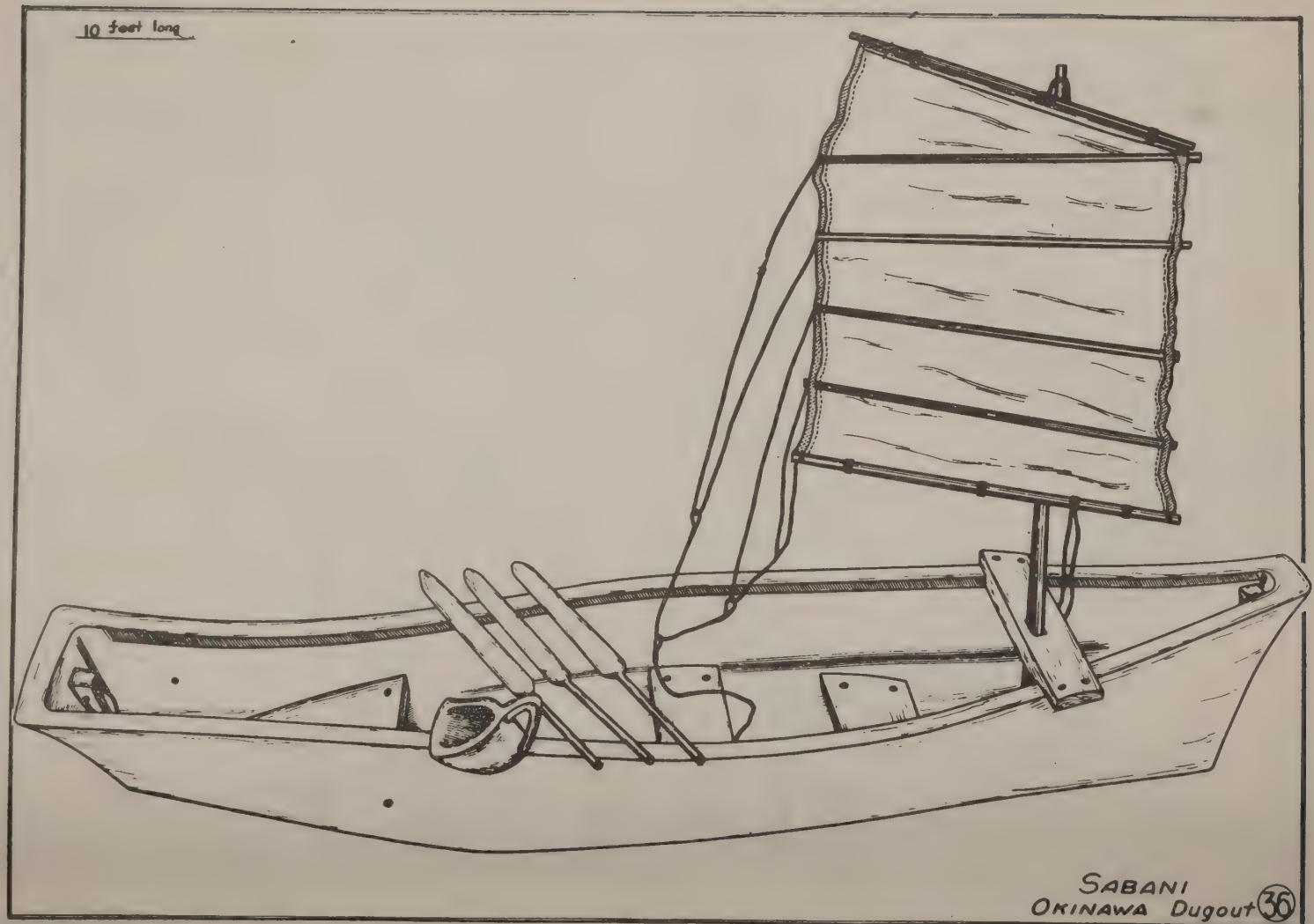

10 feet long
SABANI
OKINAWA Dugout
36

Figure 36

Okinawa dugout (SABANI) used in the operation of oikomi ami

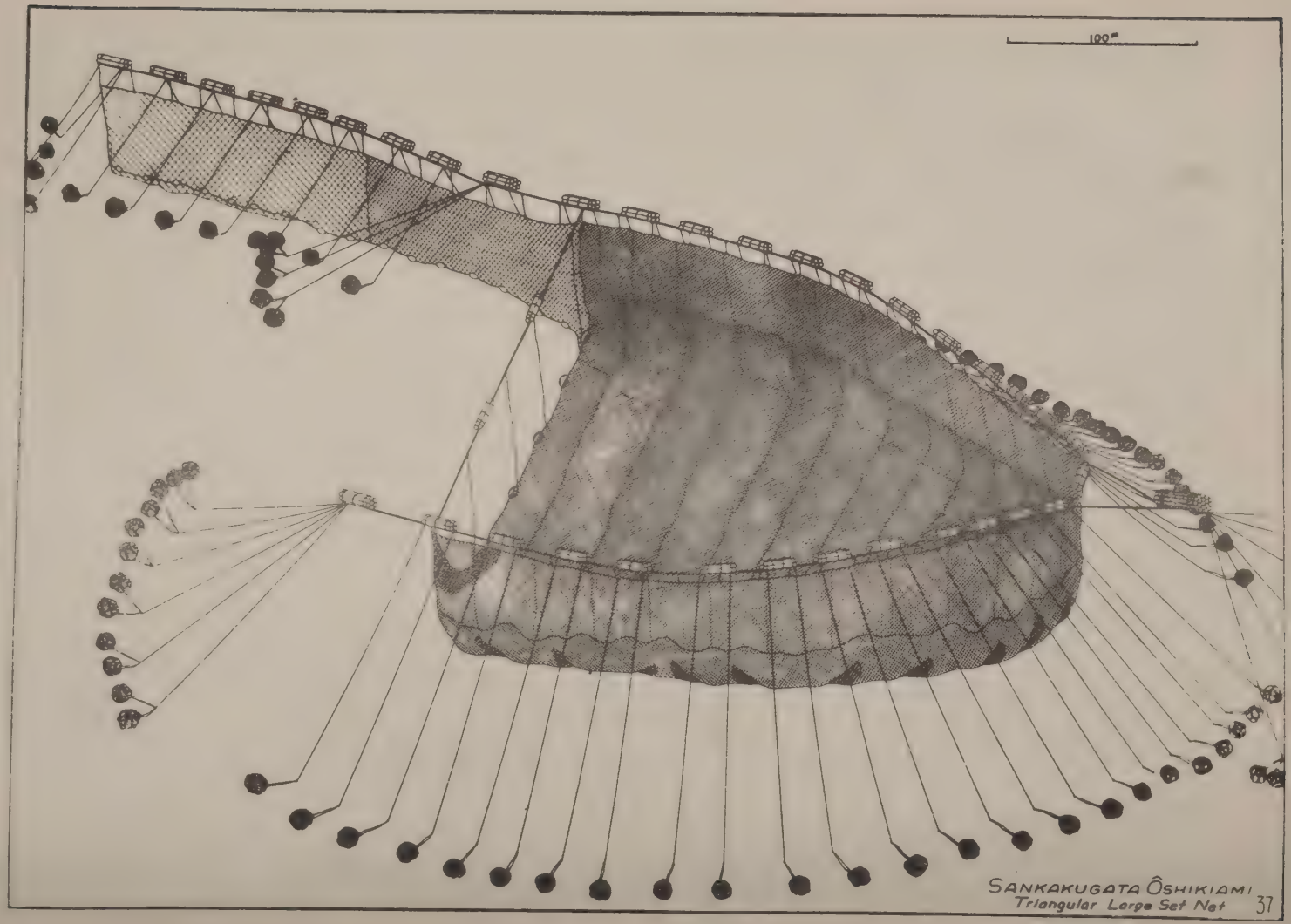

100m
SANKAKUGATA ÔSHIKIAMI
Triangular Large Set Net
37

Figure 37

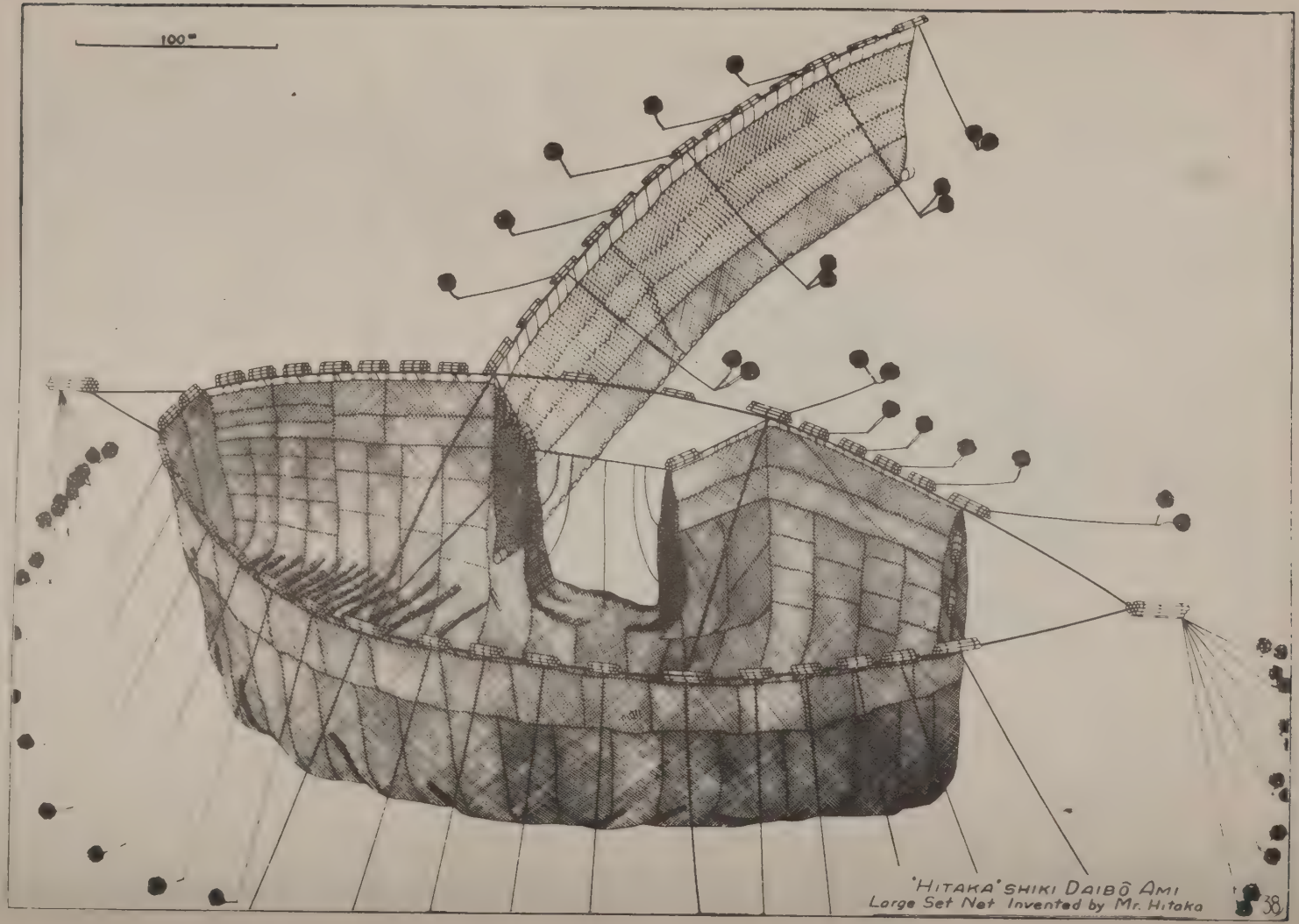
NAME: Triangular large set net (SANKAKUGATA ŌSHIKIAMI)

CONSTRUCTION: The lead net or fence is of straw rope, the net is of manila twine, and the head rope is of wire. Floats are made of six or seven bamboo sticks. The lead, varying in length according to the topography of the coast, is sometimes 3,000 to 4,000 meters long. The mesh of the net is 10 centimeters at the entrance, eight centimeters in the center, and three centimeters in the pocket. The head rope is 1.5 centimeters in diameter.

OPERATION: The net is set either from the shore or one to two miles off the coast in depths of 40 to 80 meters on sand or gravel bottoms. About 100 to 150 fishermen are needed to operate this net.

DISTRIBUTION: Used principally during the winter season in Shizuoka, Mie, and Kōchi prefectures and in the Tōhoku region of northern Honshu.

SPECIES: Yellowtail, tuna, sardines, mackerel, and hardtail as they migrate along the coast



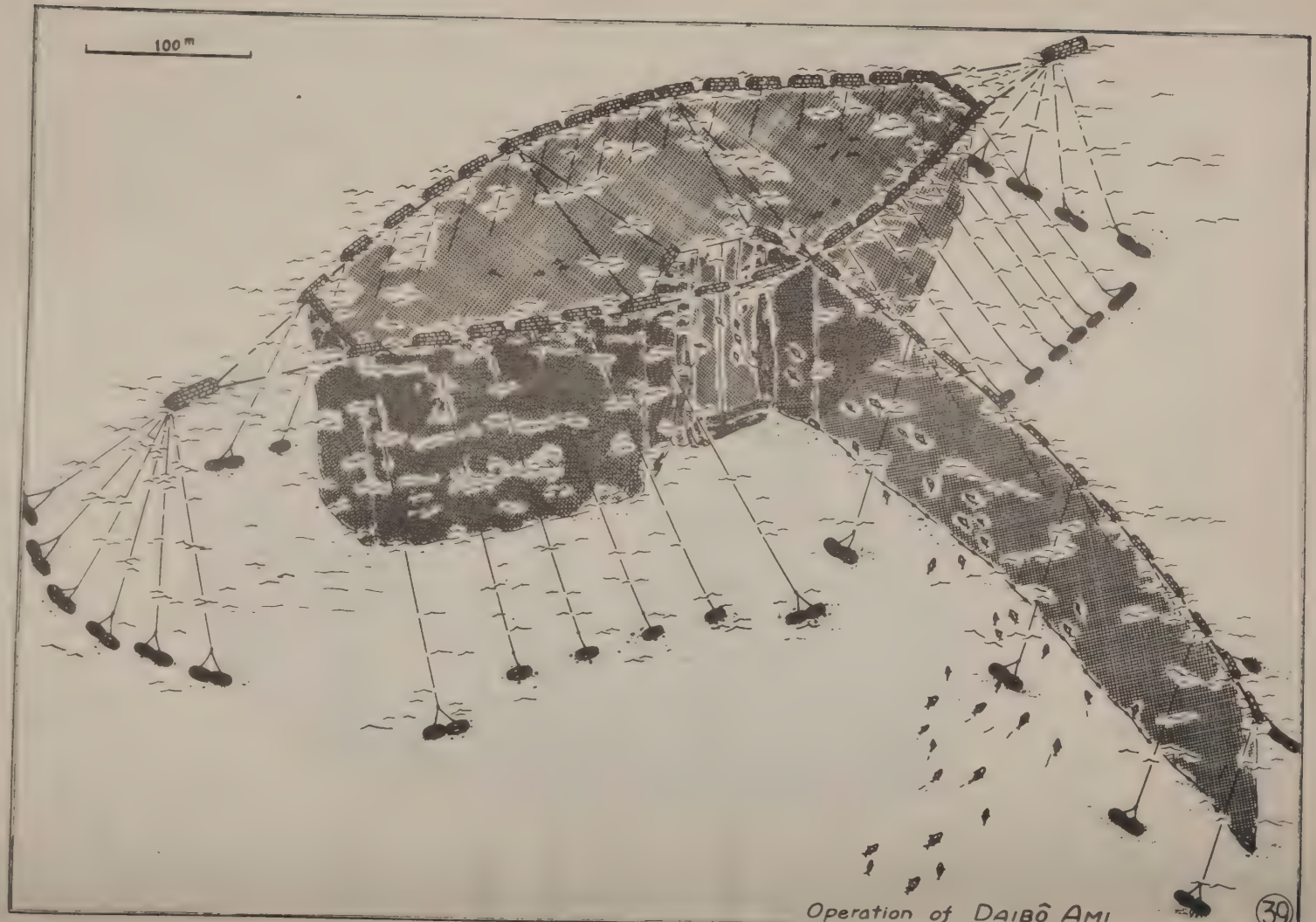
'HITAKA'SHIKI DAIBŌ AMI
Large Set Net Invented by Mr. Hitaka

38

Figure 38

NAME:	Large set net 3/ ("HITAKA" SHIKI DAIBŌ AMI)
CONSTRUCTION:	Length of lead net, varying according to topography, is often 3,000 to 4,000 meters. The net is 400 meters long and 180 meters wide.
OPERATION:	About 135 fishermen and 13 boats are used to operate this net.
DISTRIBUTION:	Used from December to June in Kanagawa, Shizuoka, Mie, and Miyazaki prefectures.
SPECIES:	Yellowtail and tuna

3/ This net was designed by Mr. Hitaka.



Operation of DAIBÔ AMI (39)

Figure 39

Operation of daibō ami

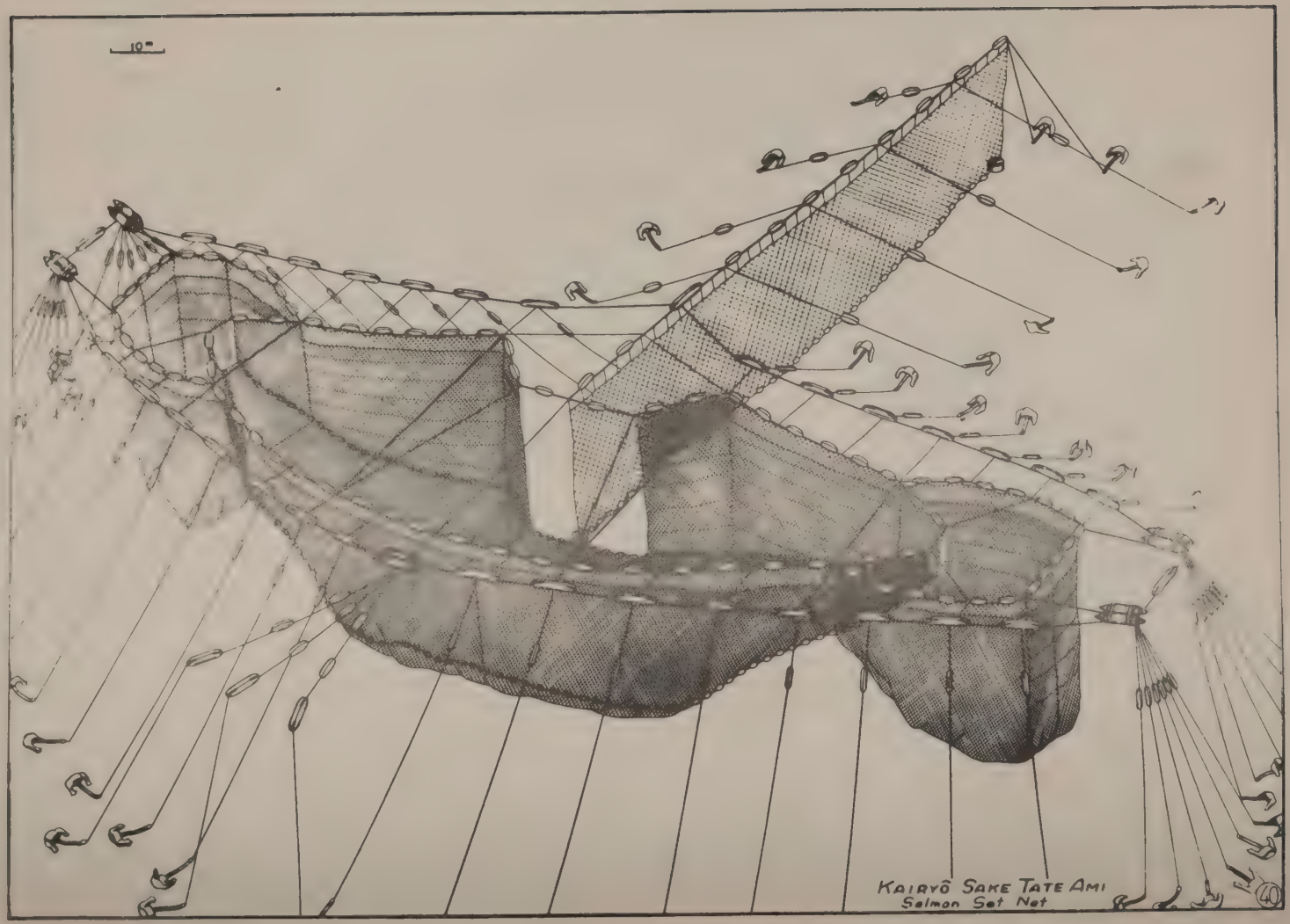

10m
KAIRYŌ SAKE TATE AMI
Salmon Set Net

Figure 40

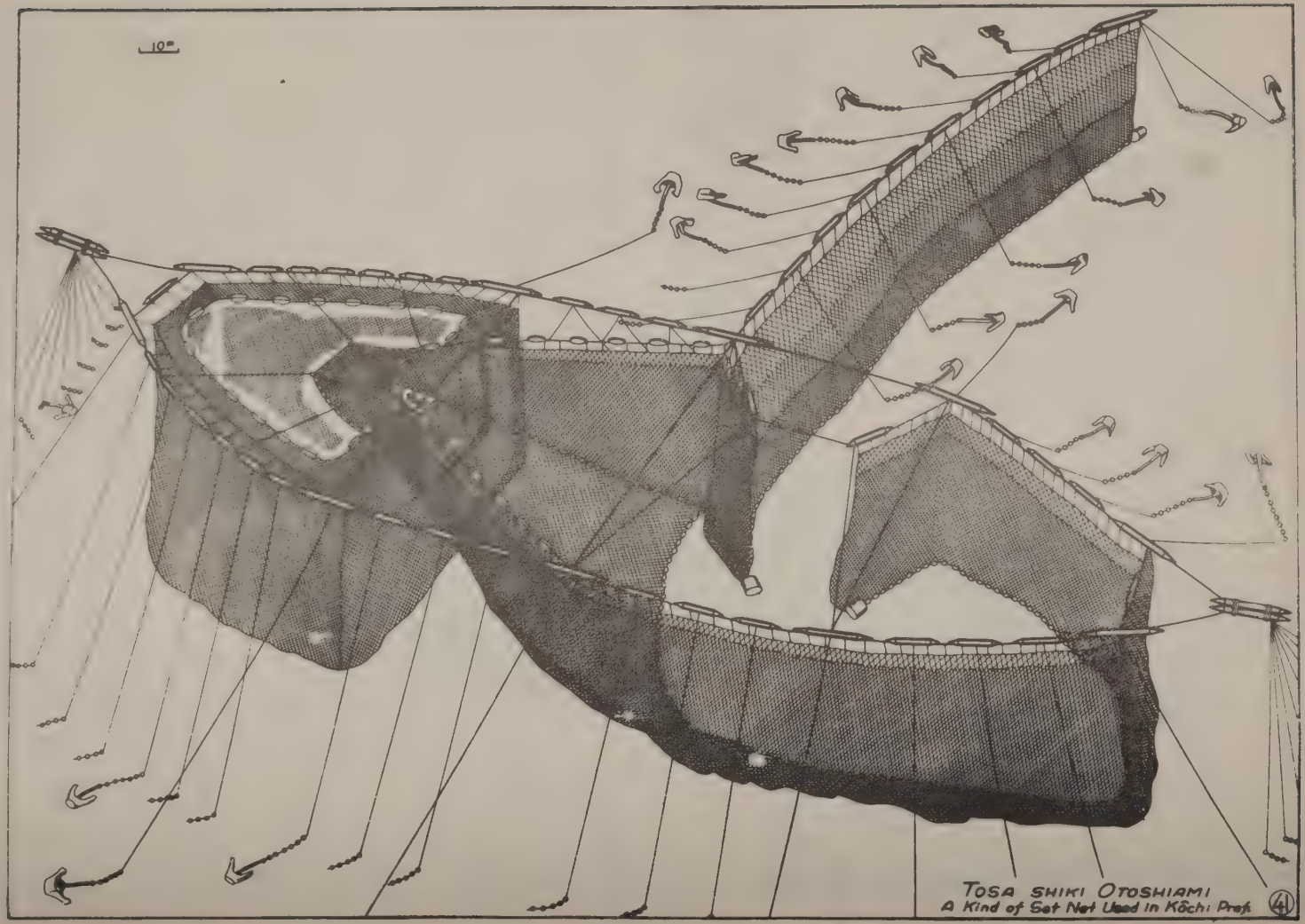
NAME: Salmon set net (KAIRYŌ SAKE TATE AMI)

CONSTRUCTION: The net is made of cotton, the leader of manila hemp or straw twine, the head rope of wire, and the anchor ropes of manila hemp. This net is about 200 meters long, 40 meters wide, and has a fence 200 meters long. The head rope is one centimeter and the anchor ropes about three centimeters in diameter.

OPERATION: About 30 fishermen operate this net, using two rowboats and a small motorboat.

DISTRIBUTION: Hokkaido, the Kuril Islands, and Kamchatka

SPECIES: Salmon and trout



TOSA SHIKI OTOSHIAMI
A Kind of Set Net Used in Kôchi Pref. (41)

Figure 41

NAME: Tosa set net (TOSA SHIKI OTOSHIAMI)

CONSTRUCTION: The net is 240 meters long and 100 meters wide.

OPERATION: Used in depths up to 60 meters. About 35 men and three boats are used.

DISTRIBUTION: Used chiefly in Kochi, Iwate, and Tokushima prefectures from January to June.

SPECIES: Yellowtail, tuna, and bonito

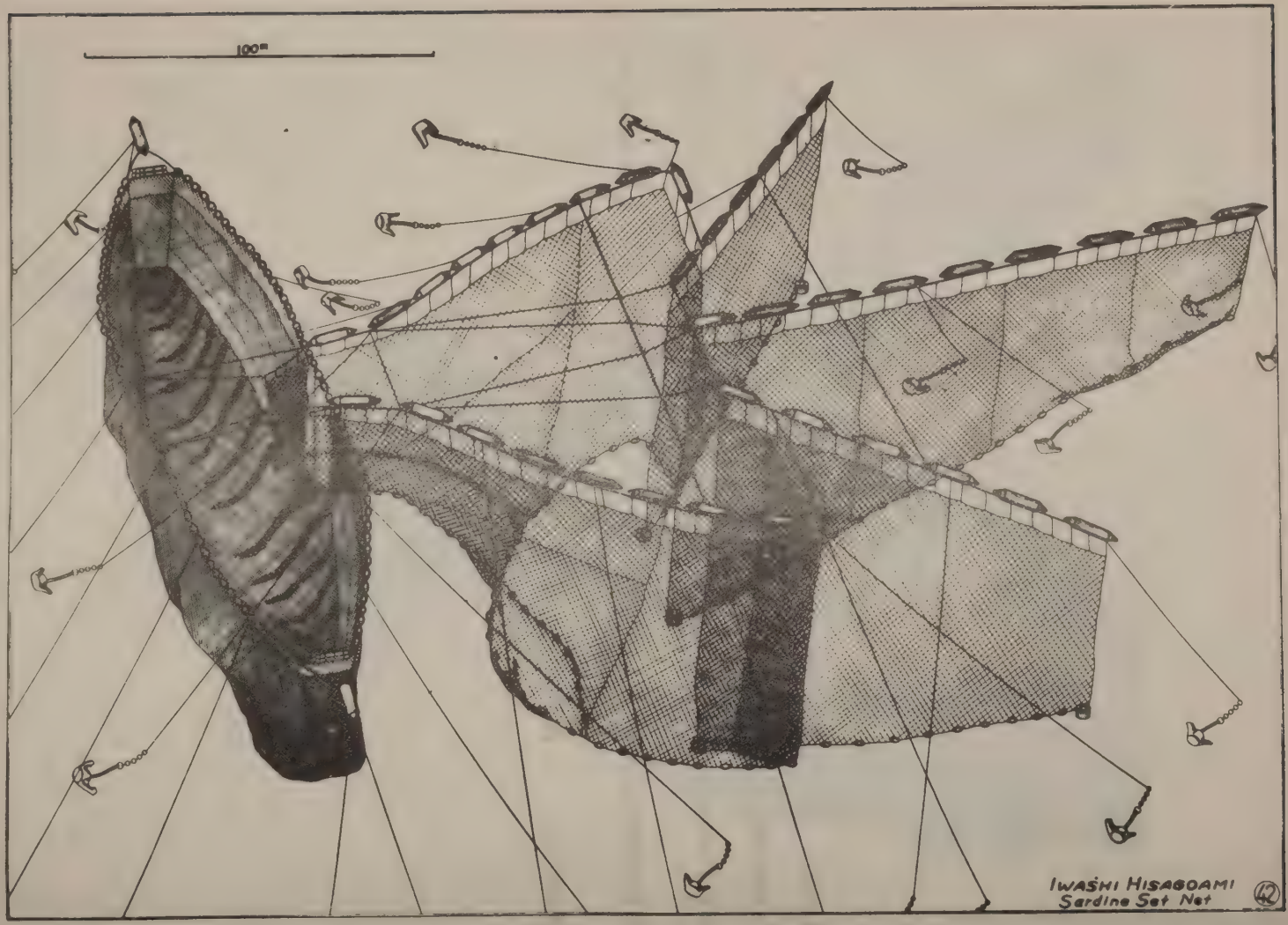

100m
IWASHI HISAGOAMI
Sardine Set Net
42

Figure 42

NAME: Sardine set net (IWASHI HISAGO AMI)

CONSTRUCTION: The net is 180 meters long and 50 meters wide.

OPERATION: Twenty men and three boats are used.

DISTRIBUTION: Used chiefly in Ishikawa and Toyama prefectures from April to August.

SPECIES: Sardine and other pelagic fish which frequent the coast in depths of 60 meters or less

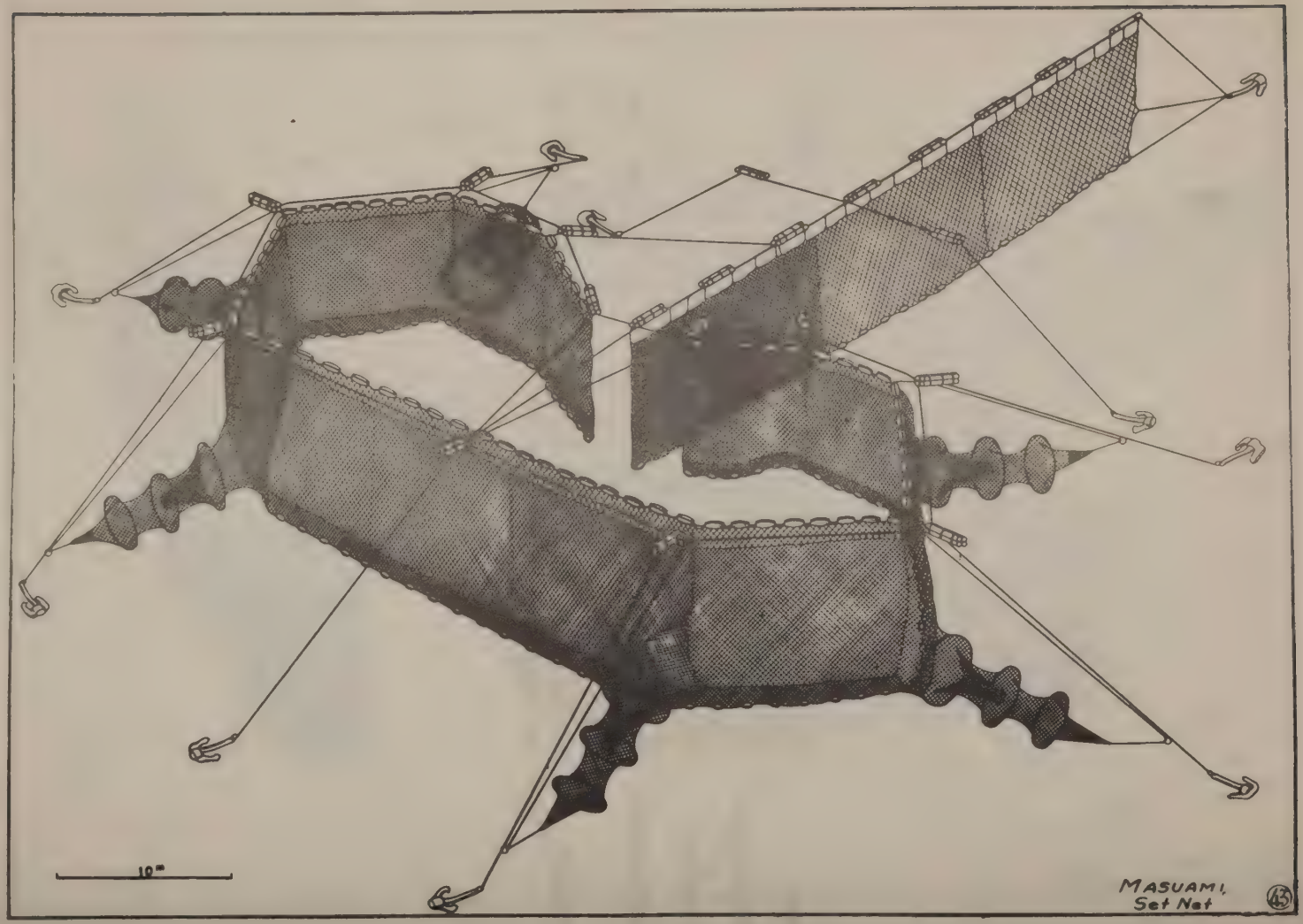

10m
MASUAMI,
Set Net
43

Figure 43

NAME: Small set net (MASU AMI)

CONSTRUCTION: The net has several pockets designed on the fyke net principle. The net is 40 meters long and 15 meters wide.

OPERATION: Operated by three or four men and a single boat.

DISTRIBUTION: Inland Sea region

SPECIES: Perch, sea bream, and flatfish which frequent coastal waters 20 meters or less in depth

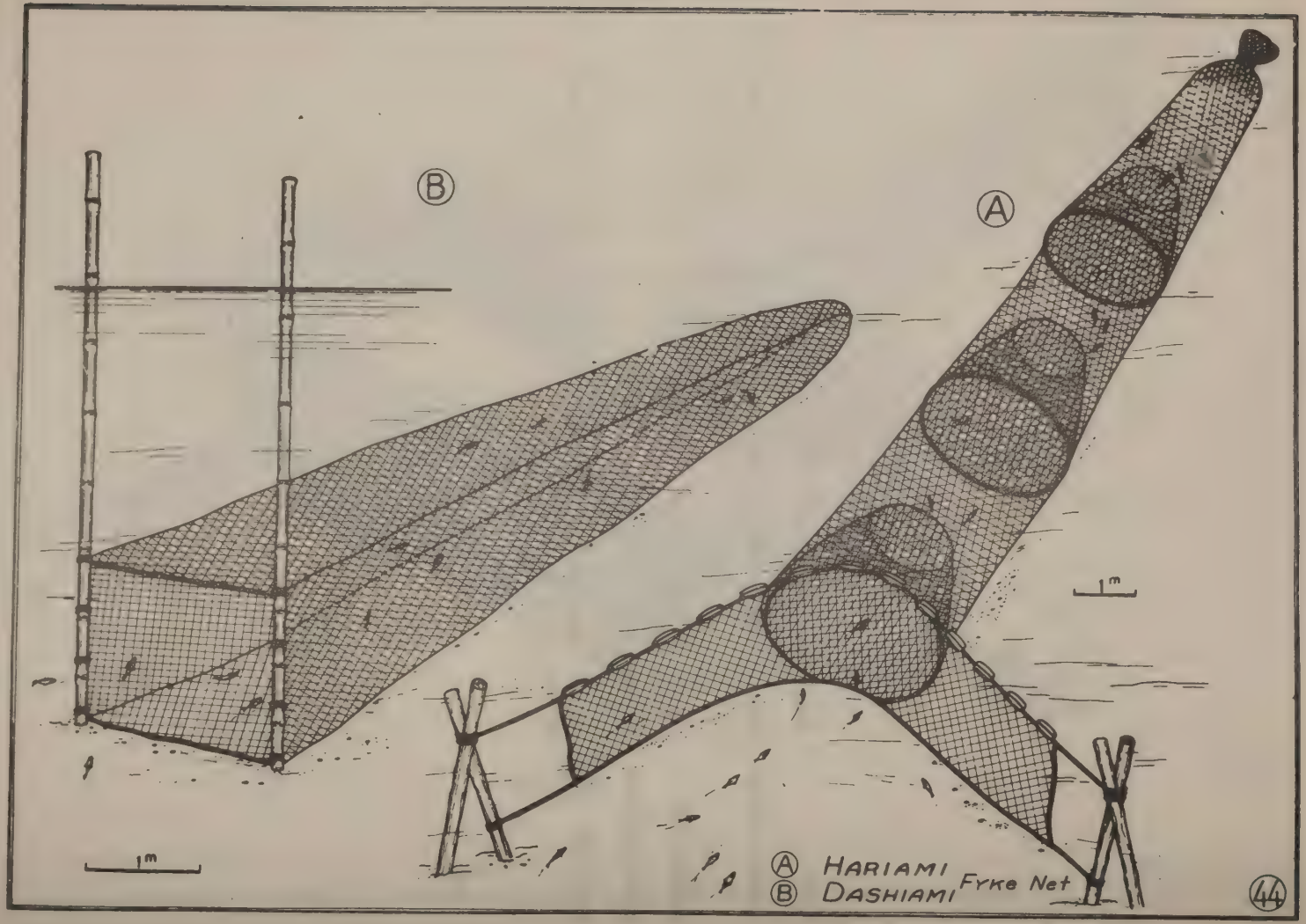

Ⓑ
Ⓐ
1m
1m
Ⓐ HARIAMI Fyke Net
Ⓑ DASHIAMI
44

Figure 44

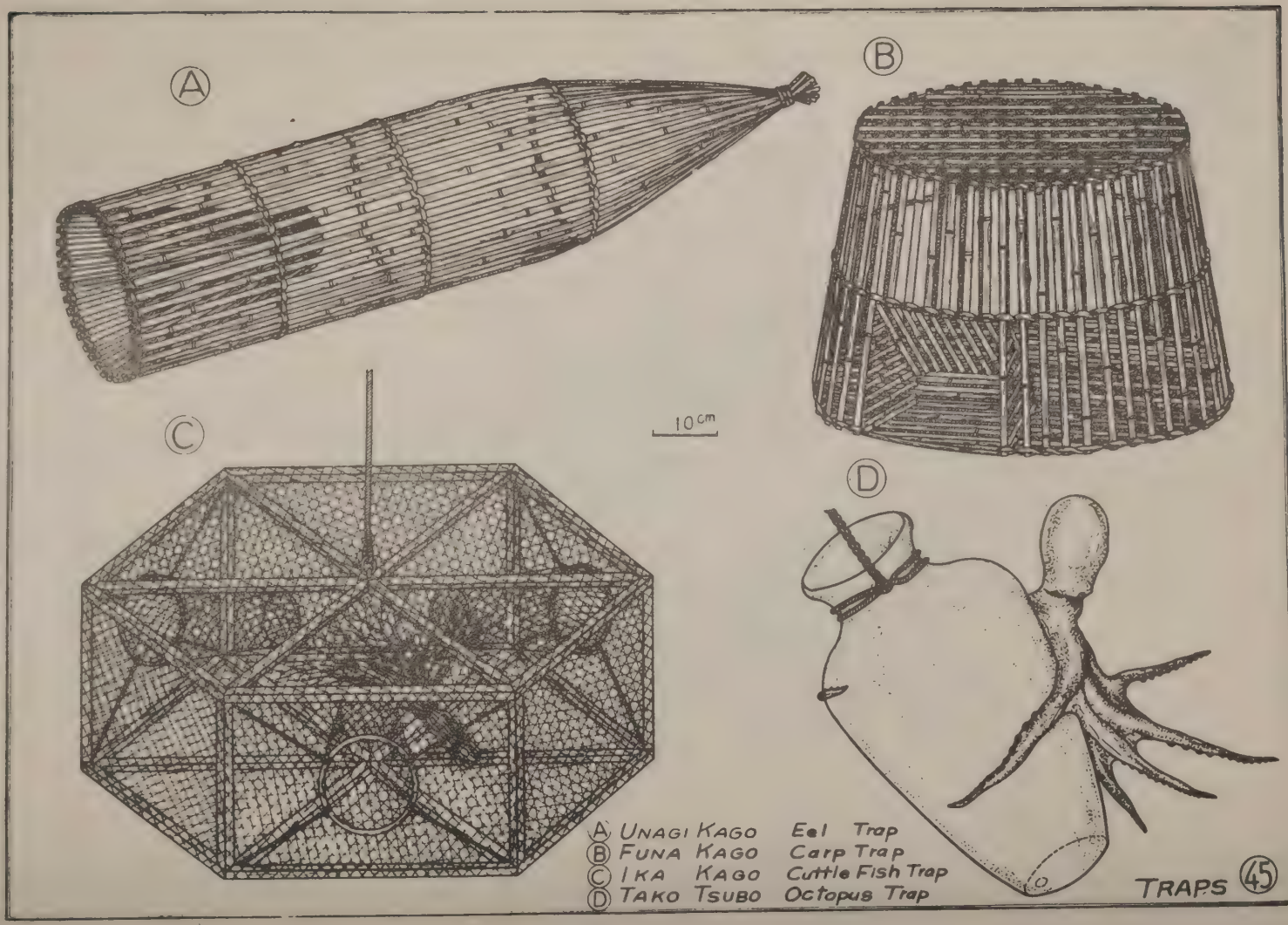
NAME: Small set nets (HARI AMI and DASHI AMI)

CONSTRUCTION: These small nets have no leaders or fences. The hari ami has short wings and a pocket built on the fyke net principle. The dashi ami has no wings and is used without sinkers. Mesh varies according to species sought.

OPERATION: The hari ami is used with sinkers and floats but is also fixed to the bottom by bamboo sticks. The dashi ami, used without sinkers, is held in place by two bamboo sticks.

DISTRIBUTION: Used in the bays of western Kyūshu, especially in Ariake Bay.

SPECIES: Gobies, shad, mullet, prawns, and shrimps



Ⓐ UNAGI KAGO Eel Trap
Ⓑ FUNA KAGO Carp Trap
Ⓒ IKA KAGO Cuttle Fish Trap
Ⓓ TAKO TSUBO Octopus Trap

TRAPS 45

TRAPS (KAGO)

Figure 45

A. Eel trap (UNAGI KAGO)

This cylindrical trap is made of split bamboo held together by vines or cotton twine. Eels entering the trap are prevented from escape by the funnel shaped tunnel (kaeshi). These traps are set in lines consisting of 10 or 20 traps on the bottom of lakes and rivers or in shallow sea areas. They are usually set at night for removal in the morning. Crushed crab, clams, or other shellfish are used for bait. Although designed for catching eels, some catfish, carp, and lampreys are often taken. This trap is common throughout Japan.

B. Carp trap (FUNA KAGO)

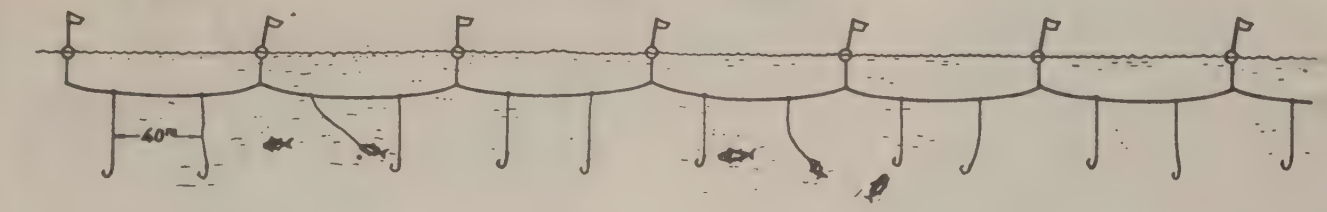
This trap, used to capture Crucian carp, is also made of split bamboo. Traps are set in lines with 20 or more to a line, the fishing operations being carried on during the day rather than at night. Rice bran (nuka) or silkworm cocoons (sanagi) are commonly used for bait. Dace, and other small fish are caught in addition to Crucian carp by these traps. They are used in lakes throughout Japan.

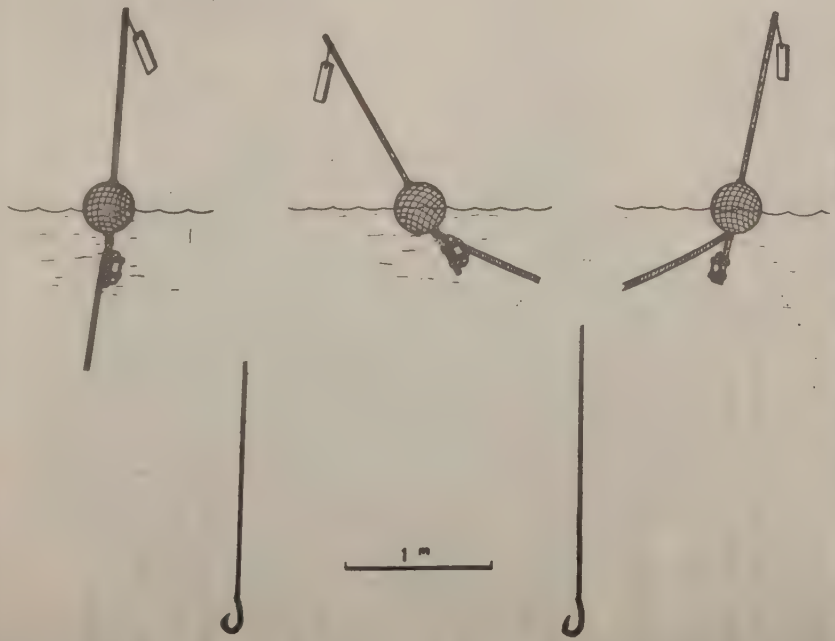
C. Cuttlefish trap (IKA KAGO)

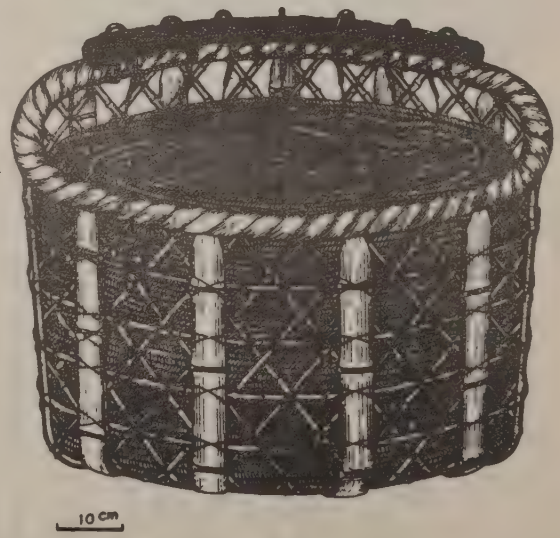
This trap is hexagonal or octagonal in shape. It is made of cotton netting on a wooden frame. Branches of azalea fixed within the trap so as to suggest zostera, a seaweed on which cuttlefish normally lay their eggs, lure the fish. The traps are set in May and June, the spawning season, in shallow coastal waters where zostera is abundant. Fishermen of Aichi Prefecture use this gear.

D. Octopus trap (TAKO TSUBO)

This trap or pot, shaped like a flower vase and made of terra cotta, is the main gear used in catching octopi which are important in the commercial fisheries of Japan. The pots are set in lines of 20 to 50 on sandy or muddy bottoms at places disturbed by little current and where the water is seven to 20 meters deep. Octopi, in search of dwelling places, enter these unbaited pots. Pots are overhauled daily, preferably early in the morning. Pots of this type, varying in details, are used throughout Japan. The type pictured is that used in the Misaki district of Kanagawa Prefecture.







MAGURO HAENAWA
Tuna Long Line

(46)

Figure 46

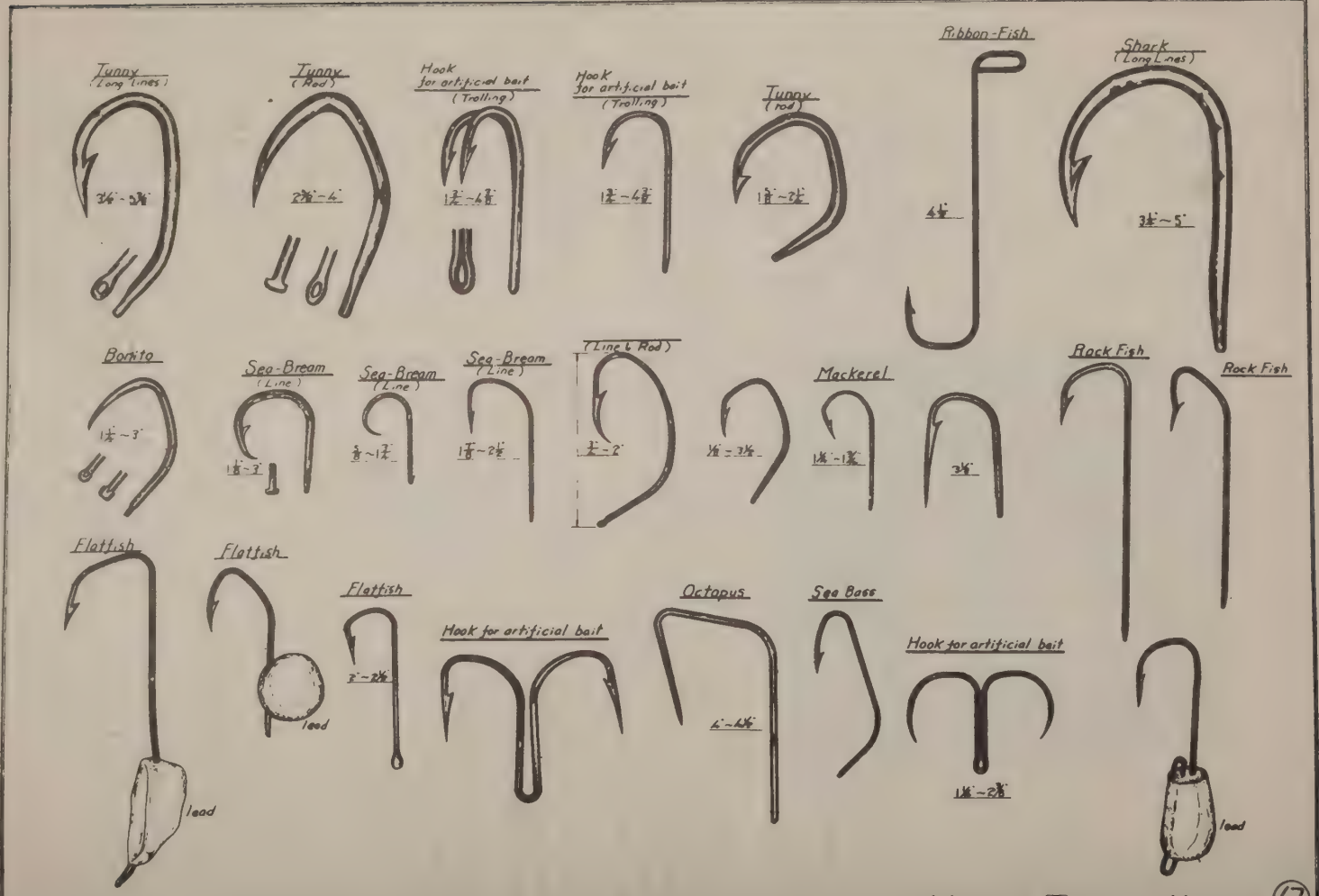
Tuna Long Line (MAGURO HAENAWA)

Tuna long lines are measured in units of baskets (hachi), each unit being 350 meters long. Each unit has seven branched hooked lines or ganging. The main or ground line (mikinawa or mikina) is of cotton; part of the branch lines (edanawa or edana) is of cotton and part is of wire. On board the fishing boat the lines are kept in bamboo baskets with the hooks stuck into straw rope which is attached to the rim of the baskets.

The units are set end to end and in some cases as many as 250 units are joined to form about 85 to 90 kilometers of line. The line is held near the surface by glass floats (bindama) about 30 centimeters in diameter and placed about 80 to 100 meters apart. A bamboo flag buoy (bonden) marks the position of each float.

One end of the line is attached to the fishing boat and the gear drifts with the boat. Men in smaller boats watch the floats. When a strike occurs they overhaul the line.

This gear is used in most of the offshore tuna fishing which is carried on east, southeast, and south of Japan Proper.



Various Types of Hooks (47)

Figure 47

Various Types of Hooks

Numerous kinds and shapes of fish hooks are used in Japan. Some of the common ones are pictured. Fishermen of southwest Japan prefer curved hooks; those of the southeast prefer angular hooks; and those of the northeast prefer long-shafted hooks. The curved type is in general use in fresh water fisheries. The shape of the shaft and the presence or absence of barbs and eyes varies according to the type of fish sought.

Jigs and Hooks to Simulate Artificial Bait (48)

Figure 48

Artificial Bait

A. Squid jig (IKA ZUNO)

Of the many types of squid jigs used in Japan, one is pictured. About seven to 10 of these jigs are grouped on a line hung in water of 100 meters or less in depth. These are used in both day and night fishing. Night fishing requires lights.

B. Octopus jig (TAKO ZUNO)

This jig, made of bronze, is used in fishing for octopus.

C. Rod and line hook

The shaft of this hook is made of horn, ivory, or shell with feather lures wrapped in the skin of the trunk fish. It is used chiefly for tuna and bonito.

D. Double hook

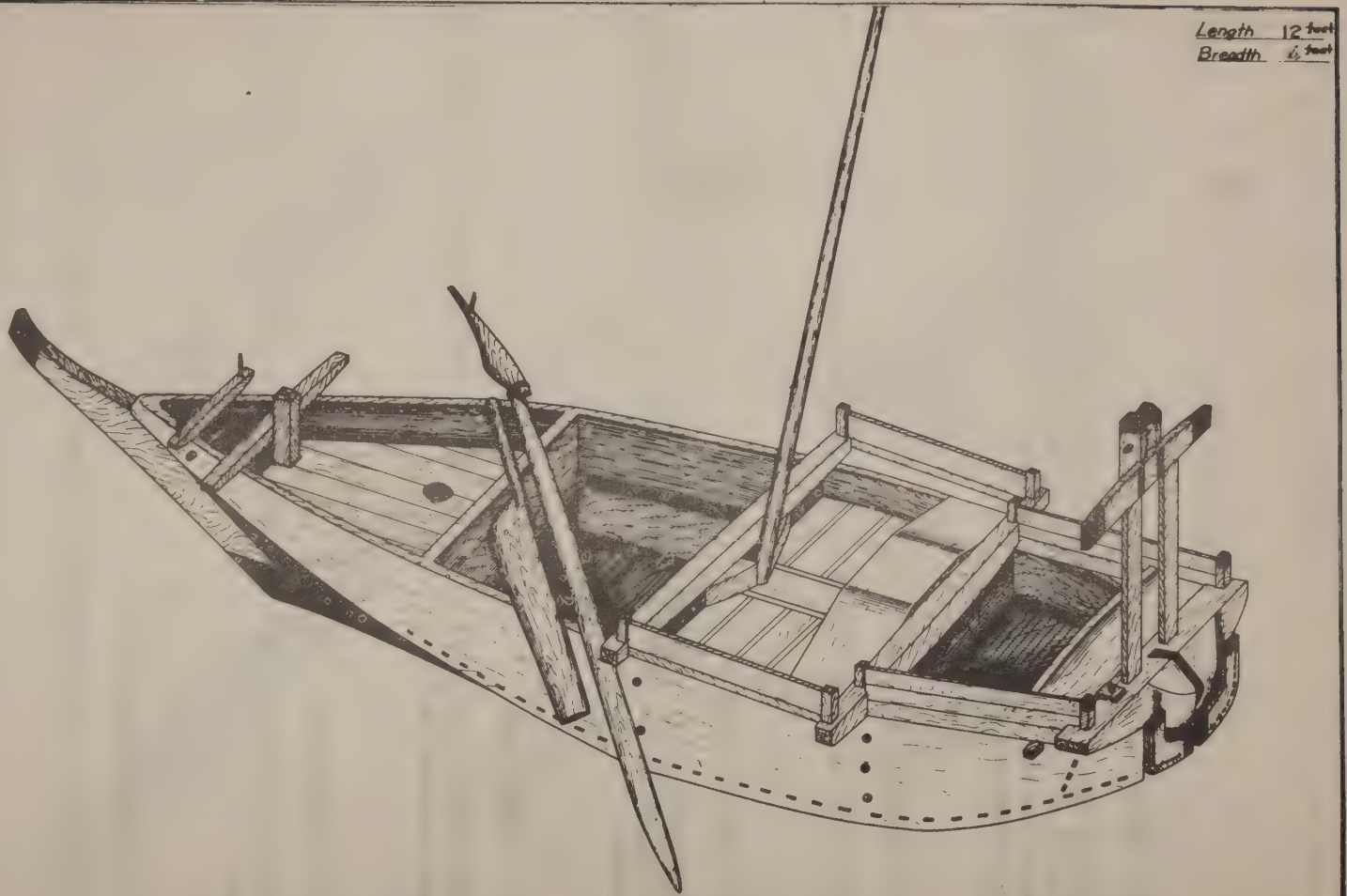
This hook is used for tuna, swordfish, and sailfish. It is made of the same material as C.

E. Octopus hook

This is similar to B. The shaft is made of lead and the hooks of bronze.

F. Rod and line hook

This hook is much like C and is used for the same species.

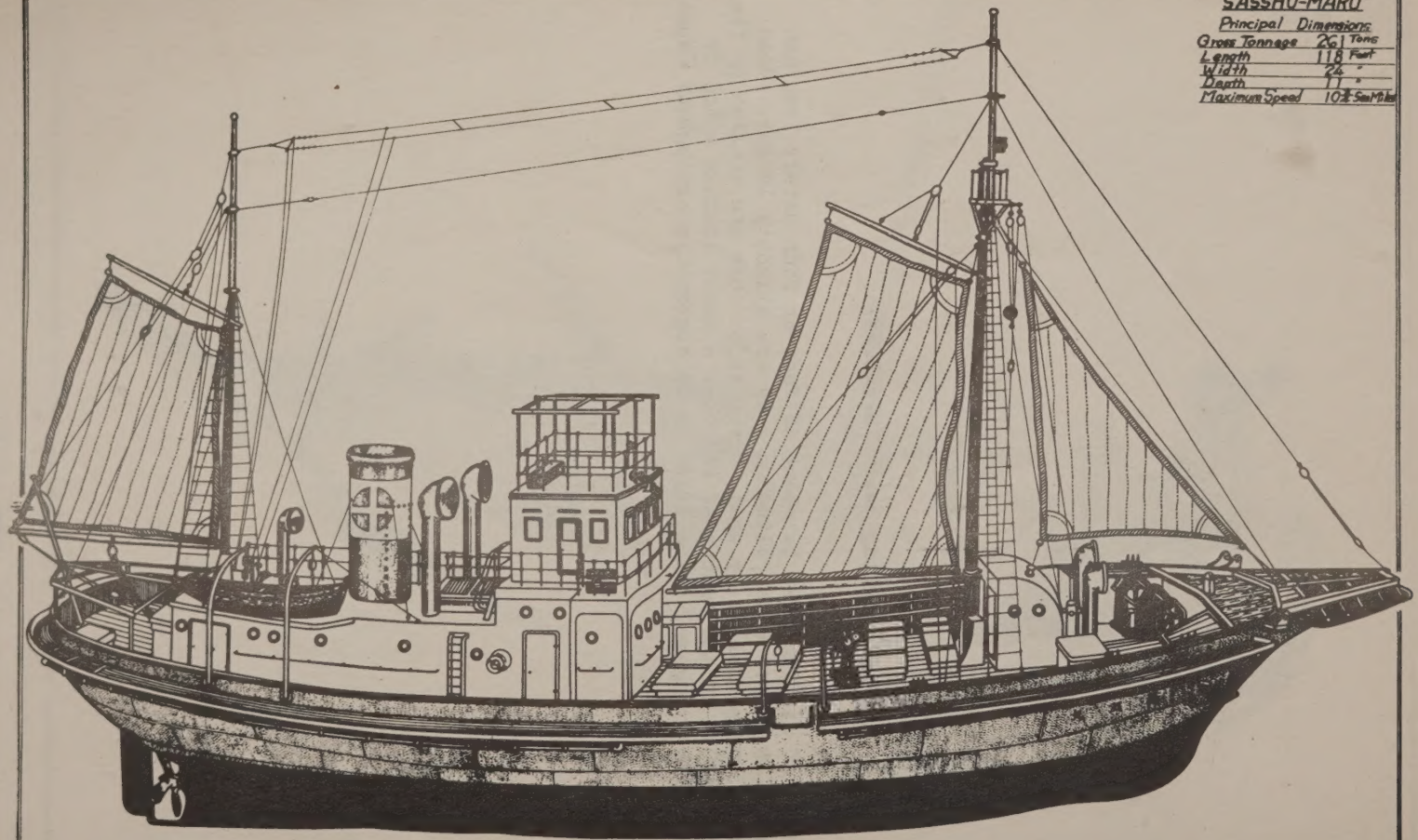


TSURIBUNE
Small Angling Boat (49)

Figure 49

Small Angling Boat (TSURIBUNE)

This type of fishing boat is about 12 feet or four meters long and four feet or 1.25 meters wide, although some are slightly larger. Some of these boats are propelled by sail, but most of them are sculled by the Japanese oar (ro). In the center of the boat a small storage space is provided for fish and gear. This craft is in common use throughout Japan.



KATSUO TSURI GYOSEN (50)
Bonito Fishing Boat

Figure 50

Bonito Fishing Boat (KATSUO TSURI GYOSEN)

These vessels vary from about 70 to 270 tons. The vessel pictured, "Sassu-Maru", is one of the larger boats with an angling platform characteristic of this type.

They are made of wood or steel, are Diesel powered, and are equipped with refrigeration units, bait tanks, and wireless.

These vessels, which carry on bonito hand line fishing and tuna long line fishing, operate in the warm waters of the Japanese Current (Kuroshio) along the coast of Japan, south to Okinawa, and near Formosa, the Philippines, and tropical Pacific islands. Fishing is conducted throughout the year in the tropical waters. Near the Bonin Islands the main season begins in January. From there the fleet moves northward until in April fishing is in the vicinity of Hachijo Island. In May and June it is off the coast of Chiba Prefecture and in July and August it is carried on as far north as Miyagi Prefecture or even the island of Hokkaido.

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